ISTSS
International Society
for Traumatic Stress Studies

A Longitudinal Investigation of Changes to Social Resources Associated With Psychological Distress Among Kurdish Torture Survivors Living in Northern Iraq

Brian J. Hall,[1,2] George A. Bonanno,[3] Paul A. Bolton,[2,4] and Judith K. Bass[2]

[1]Department of Psychology, University of Macau, Taipa, Macau (SAR), People's Republic of China
[2]Department of Mental Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA
[3]Department of Counseling and Clinical Psychology, Teachers College, Columbia University, New York, New York, USA
[4]Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

Social resources can buffer against psychological distress following potentially traumatic events. Psychological distress can also lead to social resource deterioration. This longitudinal study evaluated whether baseline psychological distress symptoms and changes in these symptoms were associated with changes in social resources 5 months later among 96 adult male (52.6%) and female treatment-seeking torture survivors residing in Kurdistan, Iraq. Adapted versions of the Hopkins Symptom Checklist-25, Harvard Trauma Questionnaire, and a traumatic grief measure were used. Locally derived scales measured perceived social support, social integration, and frequency of social contact. Multinomial logistic regression models assessed the association between symptoms and loss or gain in social resources. We hypothesized that higher mental health symptoms would relate to decreased social resources. Higher baseline depression (adjusted conditional odds ratio [ACOR] = 1.14), posttraumatic stress disorder (PTSD; ACOR = 1.09), and traumatic grief symptoms (ACOR = 1.14) increased the odds of loss of social integration. For some, higher traumatic grief symptoms were associated with increased social integration (ACOR = 1.17). Increased anxiety (ACOR = 1.23) and PTSD symptoms (ACOR = 1.07) was associated with declines in social contact; decreased depression (ACOR = 1.06) and PTSD symptoms (ACOR = 1.04) were related to gaining social contact. This study highlights the complex relationship between mental health symptoms and losses and gains in social resources among torture survivors.

During the Saddam Hussein regime, many Kurds living in Northern Iraq experienced ethnically motivated violence, oppression, captivity, and torture. During the al-Anfal Campaign (1986–1989) an estimated 182,000 Kurds were killed in a program of ethnic cleansing (Black, 1993). In one event, the Halabja poison gas massacre of 1988, 5,000 people were killed (Kinsley, 1991). People exposed to similar experiences of torture, war, and political violence commonly experience severe mental health problems (Başoğlu, Paker, Özmen, Taşdemir, & Sahin, 1994; Cardozo, Vergara, Agani, & Gotway, 2000; Gorst-

Unsworth & Goldenberg, 1998; Mollica et al., 1993; Silove, Steel, McGorry, Miles, & Drobny, 2002; Turner & Gorst-Unsworth, 1990), but not all torture survivors evidence these poor outcomes.

Within low- and middle-income countries, social resources can buffer the effects of potentially traumatic events (Gorst-Unsworth & Goldenberg, 1998; Hobfoll, Mancini, Hall, Canetti, & Bonanno, 2011). Social resources important in this process include social support, social integration, and social networks. Social support comprises actual and perceived availability of assistance from friends, family, and acquaintances (Faber & Wasserman, 2002). Social integration involves a sense of belonging and being a part of a larger community (Weiss, 1974). Social support and social integration are associated with a range of positive mental health outcomes (Charuvastra & Cloitre, 2008). Social networks, in particular the frequency of contact with friends or family members, may increase the likelihood of being provided with support (Cutrona, 1986).

Below we consider theoretical explanations for social resource loss and then consider possible explanations for resource gain.

Social resources are not static. Declines in their availability are related to psychological distress following mass disasters

(Bonanno, Brewin, Kaniasty, & La Greca, 2010; Kaniasty & Norris, 2008), political violence (Heath, Hall, Russ, Canetti, & Hobfoll, 2012), and torture (Salo, Qouta, & Punamäki, 2005). In a cross-sectional study of Palestinian male survivors of torture and political imprisonment, torture severity was associated with reduced social affiliation (Salo et al., 2005). PTSD symptoms following political violence predicted continued losses of personal and social resources over 18 months (Heath et al., 2012). These results support Hobfoll's (1989) concept of loss cycles in conservation of resources (COR) theory, which posits that losses of valued resources lead to further resource losses.

Mental health problems are likely to affect social resources mediated through person-level (i.e., behavioral and cognitive) and community-level (i.e., social and cultural) processes. Depression, anxiety, traumatic grief, and PTSD symptoms may lead to avoidance of social contact which contributes to social isolation and the disruption of social relationships. Lacking positive activities with others affects response-contingent reinforcement for nondepressive behaviors (Jacobson, Martell, & Dimidjian, 2001), which could disrupt the actual or perceived availability of social resources. Anxiety symptoms of worry, fear, and panic may lead to loss of social resources through avoidance behaviors that are shown to maintain these symptoms (Hendriks, Spijker, Licht, Beekman, & Penninx, 2012). Unique to PTSD are numbing symptoms, which may reduce social resources (King, Taft, King, Hammond, & Stone, 2006).

Cognitive models of depression suggest that thoughts about self and others become distorted and affect perceptions of support availability and community membership (Gotlib & Joormann, 2010). Distortions about one's self-worth may inhibit support seeking and accepting support from others. Cognitive models of PTSD suggest that trauma affects trust in others and beliefs in personal safety (Ehlers & Clark, 2000).

People who experience trauma and distress may also report feeling closer to friends and loved ones following political violence (Hall, Hobfoll, Canetti, Johnson, & Galea, 2009), during forced relocation following terrorism exposure (Hall et al., 2008), as former prisoners of war (Solomon & Dekel, 2007), and when living as refugees (Kroo & Nagy, 2011). Increased psychological insight, social affiliation, and spirituality are also reported as a result of surviving torture (Gorst-Unsworth, Van Velsen, & Turner, 1993; Qouta, Punamäki, Montgomery, & El Sarraj, 2007). Accumulating evidence suggests a strong relationship between mental health problems and social resources; however, no study of which we are aware has longitudinally examined these relationships in a torture-affected sample. The present analysis examined predictors of changes in social resources among Kurdish torture survivors in northern Iraq. Following COR theory and much of the empirical research, we hypothesized that higher baseline mental health symptoms would relate to decreases in social resources over time. Given the competing evidence suggesting the opposite (e.g., Gorst-Unsworth et al., 1993; Qouta et al., 2007), however, we also examined whether mental health symptoms were related to gains in social resources.

Method

Participants and Procedure

Data were collected as a part of a randomized clinical trial evaluating behavioral activation and cognitive-processing therapy against general supportive counseling in Kurdistan, Iraq, aimed at reducing depressive symptoms and dysfunction along with trauma-related symptoms (e.g., PTSD). Trial eligibility was based on exceeding locally defined cutoff scores indicating clinically significant depression symptoms, impaired functioning, and reporting exposure to torture or related systematic violence (i.e., personally experiencing or witnessing physical torture, gas attacks, imprisonment, or other military violence). Study participants were interviewed by community mental health workers at local health clinics and were not compensated. The trial was implemented in both the Kurdish Bhadini and Sorani speaking regions of Kurdistan, with all study measures adapted to the local context using a mixed methods approach whereby qualitative interviews were conducted to identify locally relevant signs and symptoms of mental health problems (Bolton, Michalopoulos, Ahmed, Murray, & Bass, 2013). Standard instruments were translated, back-translated, and further adapted by including locally relevant symptoms, and then were tested for local validity.

Four hundred ninety-one participants were randomized. We used data from waitlist control participants ($N = 116$) who did not receive study treatments during the 5-month period between baseline and follow-up assessments. Twenty participants were lost to follow-up; Little's (1988) test confirmed that data were missing completely at random (MCAR; degrees of freedom [df] $= 58$, $\chi^2 = 59.90$, $p = .410$), allowing us to analyze this smaller sample without concern for biased parameter estimates. The Johns Hopkins Bloomberg School of Public Health Institutional Review Board and the Ethical Committee of the College of Medicine at the University of Sulaimani approved the study; verbal informed consent was obtained from study participants.

Measures

Social resources were measured with items that evaluated two functional domains of social provisions (Weiss, 1974; social support and social integration) and one structural feature of participants' social network (Cutrona, 1986; frequency of social contact). Items were generated based on the prior qualitative study, so they reflect locally relevant social resources (Bolton et al., 2013). Social support was measured by summing two items: "In a crisis, I would have the support I need from family or friends; I know people who will listen and understand me when I need to talk." Social integration was measured by summing three items: "I am happy with the friendships I have," "I have people with whom I can do enjoyable things," "I feel I belong in my community." Responses for both scales ranged from $0 = strongly\ disagree$ to $3 = strongly\ agree$. Frequency of social contact was measured by summing two items inquiring how often participants socially connected with friends and other

families in the last 2 weeks. Responses ranged from 0 = *0–1 times* to 3 = *8 or more times*. These constructs showed good internal reliability; Cronbach's α values were .80 for social support, .82 for social integration, and .72 for frequency of social contact.

Depression and anxiety symptoms were assessed with the Hopkins Symptom Checklist (HSCL-25; Hesbacher, Rickels, Morris, Newman, & Rosenfeld, 1980; Winokur, Winokur, Rickels, & Cox, 1984). The HSCL-25 includes subscales for anxiety ($n = 10$ items) and depression ($n = 15$ items). Five additional symptoms relevant to the local context ("Wishing you were dead," "Feeling inferior to others," "The brain is tired," "Thinking too much," and "Able to enjoy feasts or other celebrations") were added to the Depression scale. Cronbach's α was .70 and .80 for Depression and Anxiety subscales, respectively.

Posttraumatic stress symptoms were assessed using 29 items from the symptom section of the Harvard Trauma Questionnaire (HTQ; Mollica, Caspi-Yavin, Bollini, & Truong, 1992). Two symptoms were added related to trauma reactions in the local context ("Unable to express your feelings," "Fighting with others"). Cronbach's α was .86.

Traumatic grief was assessed with 12 items related to the violent death of a close friend or family member, derived from qualitative interviews. Of these items, 11 are found on either the Inventory of Traumatic Greif (ITG; Prigerson et al., 1995) or the ITG-Revised (Prigerson et al., 1999), suggesting overlap between Kurdish and Western conceptualizations of traumatic grief. Sample items are "Feeling drawn to places and things associated with people who have died" and "Feeling that you have lost your sense of control." One symptom was specific to the Kurdish sample: "Imitating some of the same behaviors or characteristics of people who have died." Cronbach's α was .81. For each of the three preceding instruments, participants reported how frequently they experienced symptoms in the prior 2 weeks using a 4-point Likert-type response scale ranging from 0 = *never* to 3 = *always*.

Participant characteristics included sex, age, educational attainment (none/primary school vs. secondary school/college), marital status (unmarried vs. married), and two linguistically different locations (Erbil/Sulaiymaniya, Iraq vs. Dohuk, Iraq).

Data Analysis

At the individual participant level, change in each social resource from baseline to follow-up was categorized as "no measurable change," "loss of resources," and "gain in resources." Categorical classification was accomplished by subtracting follow-up scores from baseline scores and using the *SD* of the difference to classify "no measurable change" (change within 1 *SD* from zero on the change score), "loss of resources" (change lower than 1 *SD* from zero); and "gain in resources" (change greater than 1 *SD* from zero). The mean baseline score for social support was 1.79 ($SD = 1.63$), 2.49 ($SD = 2.15$) for social integration, and 1.26 ($SD = 1.39$) for frequency of social contact. Our modeling approach allowed us to examine mean-

ingful changes, both positive and negative, occurring in our participants. Simply modeling average change may obfuscate subgroup changes as several patterns or trajectories of loss and gain may exist; our sample was not sufficiently large to employ latent modeling.

Multinomial logistic regression assessed whether mental health problem scores were associated with changes in each social resource over time. The first set of analyses investigated the associations between baseline mental health problem scores and change in social resources over time yielding adjusted conditional odds ratios (ACORs). ACORs are interpreted as the likelihood of being in either the loss or gain in resources group for a 1-unit change in each of the baseline mental health problem scores conditioned on the no-change group (the reference category). Analyses were adjusted for potential confounding by participant sex, age, education, martial status, and linguistic group.

The second set of analyses evaluated whether changes in mental health problem scores occurring between baseline and follow-up accounted for changes in social resources identified in the first set of analyses. These analyses were conducted because relying only on baseline mental health problems scores would tell an important yet incomplete story by failing to consider the time-varying nature of mental health problems. We generated mental health problem change scores by subtracting follow-up from baseline scores for each of the mental health measures. The mental health problem change scores were included in multivariable multinomial regression models in the same way the baseline scores were utilized in the first analyses described above. Data analyses were conducted using PASW version 18 (IBM, 2009).

Results

Participant demographics and baseline average mental health problem scores are shown in Table 1. The sample was roughly equal in the distribution of sex and educational attainment. The majority of the sample was married (72.4%) and more than half lived in the Sulaimaniya/Erbil region (56.9%). Table 2 presents the means of each social resource and the proportion of the sample who lost or gained each of these resources.

Results of multivariable analyses for baseline mental health problems predicting changes in social resource outcomes are shown in Table 3. Higher baseline depression, ACOR = 1.10, $p = .044$; 95% confidence interval (CI) [1.02, 1.20], and traumatic grief, ACOR = 1.17, $p = .004$; 95% CI [1.05, 1.30], significantly increased the odds of gaining social support. The odds of gaining social support (vs. no change) increased 10% for every 1-point increase in baseline depression, and 17% for every 1-point increase in baseline traumatic grief. No baseline symptoms were significantly associated with losses to social support.

Higher baseline depression, ACOR = 1.22, $p < .001$; 95% CI [1.10, 1.35], anxiety, ACOR = 1.15, $p = .011$; 95% CI

Table 1
Participant Demographics, Means, and Standard Deviations for Baseline Mental Health Problems

Variable	n	%	M	SD	Range
Gender					
Male	49	51.0			
Female	47	49.0			
Education					
None/primary	57	59.4			
Secondary/college	39	40.6			
Marital status					
Unmarried	27	28.1			
Married	69	71.9			
Geographical location					
Sulaimaniya/Erbil region	53	55.2			
Dohuk region	43	44.8			
Age (years)			41.94	13.25	19–76
HSCL–Depression			29.85	6.57	10–45
HSCL–Anxiety			11.65	4.99	2–24
HTQ–PTSD symptoms			38.62	11.67	6–64
Traumatic grief			8.89	5.28	0–22

Note. $N = 96$. HSCL = Hopkins symptom checklist; HTQ = Harvard Trauma Questionnaire; PTSD = posttraumatic stress disorder.

[1.03, 1.29], PTSD symptoms, ACOR = 1.11, $p < .001$; 95% CI [1.05, 1.18], and traumatic grief, ACOR = 1.17, $p = .004$; 95% CI [1.05, 1.30], increased the odds of gaining social integration. Depression symptoms, ACOR = 1.14, $p = .035$; 95% CI [1.01, 1.30], PTSD symptoms, ACOR = 1.09, $p = .017$; 95% CI [1.02, 1.17], and traumatic grief, ACOR = 1.14, $p = .049$; 95% CI [1.01, 1.29], were also associated with losses to social integration. Baseline mental health problems

Table 2
Percentages and Means for Main Study Outcomes

Variable	n	%	Baseline		Follow-up	
			M	SD	M	SD
Social support						
Loss	8	8.3	4.75	1.03	2.25	1.16
No change	64	66.7	4.73	1.27	4.65	1.21
Gain	24	25.0	2.29	1.42	5.00	1.31
Social integration						
Loss	15	15.6	7.60	1.45	4.66	2.19
No change	54	56.3	7.00	1.86	7.00	1.94
Gain	26	27.1	4.46	1.65	7.57	1.33
Frequency of social contact						
Loss	10	10.4	3.60	1.64	1.00	1.33
No change	67	69.8	1.16	1.21	1.28	1.25
Gain	19	19.8	0.47	0.77	2.84	0.89

were not associated with changes in the frequency of social contact.

Regression results evaluating changes in symptoms predicting changes in social resources are shown in Table 4. Changes in symptoms between baseline and follow-up were not significantly related to changes in social support.

Decreased depression, *ACOR* = 1.11, $p = .001$; 95% CI [1.04, 1.18], anxiety, ACOR = 1.14, $p = .001$; 95% CI [1.03, 1.25], and PTSD symptoms, ACOR = 1.06, $p < .001$; 95% CI [1.02, 1.11], was significantly associated with the odds of gaining social integration. Changes in symptoms were not associated with losses to social integration.

Decreased depression, ACOR = 1.06, $p = .037$; 95% CI [1.01, 1.24], and PTSD symptoms, ACOR = 1.04, $p = .041$; 95% CI [1.01, 1.09] was associated with the odds of gaining social contact. Increased anxiety, ACOR = 1.23, $p = .017$; 95% CI [1.04, 1.45], and PTSD symptoms, ACOR = 1.07, $p = .045$; 95% CI [1.01, 1.14], was associated with the odds of losing social contact.

Discussion

Examining the disruption to social resources is relevant in low resource contexts given the scarcity of available mental health services in these communities and the high prevalence of traumatic events. Social resources are important predictors of mental health outcomes following potentially traumatic events (Brewin, Andrews, & Valentine, 2000; Gorst-Unsworth & Goldenberg, 1998; Hobfoll et al., 2011; Steel, Silove, Bird, McGorry, & Mohan, 1999).

Baseline mental health symptoms were not related to changes in social support. Greater baseline depression, PTSD symptoms, and traumatic grief symptoms, however, were reported among torture survivors who lost social integration. This was not accounted for by changes in mental health symptoms between baseline and follow-up. Baseline symptoms did not predict changes in the frequency of social contact, but changes occurring in symptoms over time did; participants who experienced a reduction in depression and PTSD symptoms were more likely to have greater social contact, whereas those whose anxiety and PTSD symptoms increased were in contact with people less frequently.

Baseline symptoms of depression and traumatic grief were higher among torture survivors who gained social support. Baseline symptoms of depression, anxiety, PTSD symptoms, and traumatic grief were higher for torture survivors who gained social integration. Our analysis of the change in mental health symptoms partially explained these findings indicating that decreases in symptoms occurring between baseline and follow-up were generally related to these gains.

In our study, baseline mental health symptoms were not related to changes in social contact. Changes in symptom severity over time (either improvement or worsening), however, were associated with changes in frequency of contact, implying that

Table 3

Baseline Mental Health Symptoms and Their Relationship to the Changes in Social Resources

| | Social support | | | | Social integration | | | | Frequency of social contact | | | |
| | Loss | | Gain | | Loss | | Gain | | Loss | | Gain | |
Variable	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI
HSCL-D	0.98	[0.86,1.12]	1.10[*]	[1.02,1.20]	1.14[*]	[1.01,1.30]	1.22[***]	[1.10,1.35]	1.08	[0.94,1.24]	0.98	[0.90,1.07]
HSCL-A	1.10	[0.94,1.28]	1.11	[1.00,1.23]	1.03	[0.90,1.17]	1.15[*]	[1.03,1.29]	0.94	[0.80,1.10]	0.99	[0.89,1.10]
HTQ	1.05	[0.97,1.14]	1.03	[0.97,1.08]	1.09[*]	[1.02,1.17]	1.11[***]	[1.05,1.18]	0.96	[0.89,1.03]	1.01	[0.97,1.06]
TG	1.13	[0.96,1.33]	1.17[***]	[1.05,1.30]	1.14[*]	[1.01,1.29]	1.17[***]	[1.05,1.30]	0.96	[0.85,1.14]	1.07	[0.97,1.19]

Note. $N = 96$. Each row in this table represents three separate analyses; each mental health symptom score separately regressed on changes in each social resource outcome. Each ACOR for loss and gain is compared against the reference group of no change in social resources. Models are adjusted for age, sex, education, marital status, and geographical location. Marital status was not included in the social support model, as no one who was not married gained in support. ACOR = adjusted conditional odds ratio; HSCL-D = Hopkins symptom checklist-Depression subscale; HSCL-A = Hopkins symptom checklist-Anxiety subscale; HTQ = Harvard Trauma Questionnaire; TG = traumatic grief.
*$p < .05$. ***$p < .001$.

social behaviors of the participants or their community members were affected by psychological distress. This fits the evidence that anxiety is strongly associated with behavioral avoidance (Hendriks et al., 2012) and that social behaviors increase as symptoms are reduced (Gorst-Unsworth & Goldenberg, 1998). When mental health problems are reduced, people may attract their supports, which may account for why symptom decline was associated with increased social contact.

Kurdish torture survivors reported that symptoms of depression affected social and family relationships (Bolton et al., 2013); poor mood and lack of interest in social activities may lead friends and family members to avoid or stop initiating contact. Irritability, common to both depression and PTSD, is one explanation for the erosion of social support (King et al., 2006). Mental health symptoms may overwhelm a social network's ability to empathize, leading to discomfort, confusion, and a lack of ability to relate to the survivor, leading to support deterioration.

Following interpersonal trauma, stigmatizing and alienating reactions from others increases vulnerability to psychological distress (Campbell, Ahrens, Sefl, Wasco, & Barnes, 2001; Davis, Brickman, & Baker, 1991; Ullman, 1996). These reactions were noted during the earlier qualitative study. Participants reported discrimination, being cursed at, looked down upon, and that their social relationships had "become weak." Kurdish torture survivors reported that experiencing symptoms were both a cause and consequence of being marginalized within their community (Bolton et al., 2013).

Although tortured political prisoners may report benefits because of their personal sacrifice for an ideological cause (Ursano, Grieger, & McCarroll, 1996), this was not the case in Kurdistan. The Kurds were not advocating for a political ideology. Those who gained in resources reported high levels of distress at baseline, but these symptoms declined over time. Our results demonstrate that psychological distress is associated with social resources through this intuitive inverse relationship;

Table 4

Changes in Mental Health Symptoms and Their Relationship to the Changes in Social Resources

| | Social support | | | | Social integration | | | | Frequency of social contact | | | |
| | Loss | | Gain | | Loss | | Gain | | Loss | | Gain | |
Variable	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI	ACOR	95% CI
HSCL-D	1.04	[0.97,1.13]	1.04	[1.00,1.10]	1.00	[0.93,1.08]	1.11[***]	[1.04,1.18]	1.07	[0.98,1.16]	1.06[*]	[1.01,1.24]
HSCL-A	0.96	[0.87,1.14]	1.06	[0.97,1.15]	1.00	[0.92,1.15]	1.14[***]	[1.03,1.25]	1.23[*]	[1.04,1.45]	1.05	[0.96,1.16]
HTQ	1.02	[0.96,1.08]	1.01	[0.97,1.04]	0.98	[0.94,1.03]	1.06[*]	[1.02,1.11]	1.07[*]	[1.01,1.14]	1.04[*]	[1.01,1.09]
TG	1.23	[0.97,1.57]	1.11	[0.99,1.23]	1.00	[0.87,1.16]	1.10	[0.99,1.23]	1.15	[0.95,1.40]	1.12	[0.99,1.27]

Note. $N = 96$. Each row in this table represents three separate analyses; each mental health symptom score separately regressed on changes in each social resource outcome. Each ACOR for loss and gain is compared against the reference group of no change in social resources. Models are adjusted for age, sex, education, marital status, and geographical location. Marital status was not included in the social support model, as no one who was not married gained in support. Loss is predicted by the increase in symptoms occurring between baseline and follow-up. Gain is predicted by decreases in symptoms between baseline and follow-up. ACOR = adjusted conditional odds ratio; HSCL-D = Hopkins symptom checklist-Depression subscale; HSCL-A = Hopkins symptom checklist-Anxiety subscale; HTQ = Harvard Trauma Questionnaire; TG = traumatic grief.
*$p < .05$. ***$p < .001$.

as symptoms decline, social resources improve. Conversely, we would also expect that as gains in social resources occur, symptoms of distress would reduce.

Baseline traumatic grief led to an increase in social support and social integration. For some survivors, intense grief may be associated with support mobilization. Suffering a traumatic loss jointly affects individuals and communities, which may lead to increases in support from friends and family. Although traumatic grief is described by a variety of cognitive, emotional, and behavioral difficulties, the dominant emotional experience of traumatic grief is yearning and intense sadness. Clinical and nonclinical research suggests that the emotion of sadness serves two important functions, one intrapersonal and one interpersonal (Bonanno, 2009; Bonanno, Goorin, & Coifman, 2008). At an intrapersonal level, the experience of sadness appears to turn attention inward to facilitate reflection and recalibration of schematic meaning structures. At an interpersonal level, the expression of sadness appears to evoke similar emotional responses in others as well as sympathy and caring behaviors (Bonanno, 2009). The debilitating symptoms of traumatic grief, depression, and PTSD that often characterize torture survivors may obviate any functional value that sadness might engender. The results of our study, however, suggest that for some torture survivors this is likely not the case.

We examined three specific domains of social resources and whether different mental health symptoms were associated differentially with these outcomes, which offers a more nuanced methodological approach. That mental health and social resources measures were locally validated increases confidence in the results and overcomes methodological artifacts inherent in imposing Western conceptualizations of distress on other cultural groups.

Several important limitations should be noted. This was a treatment-seeking sample and these results may not generalizable to nonclinical community samples. Initially high symptom levels can also lead to regression to the mean. We attempted to account for this process by modeling changes in symptoms occurring between baseline and follow-up. Changes in symptoms over time may better explain resource gains, but this was not the case for losses.

Participants experienced torture years before this study, but the time since event was not ascertained. This study offers only a snapshot of an ongoing dynamic interplay of the course of symptoms and social resources. Detailed information about torture experiences is not available and greater exposure (Sarraj, Punamäki, Salmi, & Summerfield, 1996), torture severity (Başoğlu & Paker, 1995), and torture type (Başoğlu, 2009; Başoğlu et al., 1994) is associated with mental health problems. A more-nuanced understanding of torture experiences and the relationship to changes in social resources is needed. Information about traumatic losses is also unavailable. Future investigations can explore possible interactions between specific types of traumatic loss (e.g., loss to child) and subsequent changes in social resources. Sex differences exist in social re-

lationships and support processes (Vaux, 1985); however, this study was underpowered to explore these differences.

One consequence of torture is an increased risk of psychological distress. Our findings demonstrate that greater distress is associated with reductions in social resources. These resources provide vital protection against further distress, decreases in functioning, and poor health outcomes. Future studies should measure mediating processes to explore potential mechanisms accounting for these losses. Effective interventions targeting these mechanisms among torture survivors may provide the additional skills needed to forestall this loss. Our results also suggest that those attempting to investigate posttraumatic growth following traumatic events should account for symptoms of distress and the dynamic associations between these constructs over time.

References

Başoğlu, M. (2009). A multivariate contextual analysis of torture and cruel, inhuman, and degrading treatments: Implications for an evidence-based definition of torture. *American Journal of Orthopsychiatry*, *79*, 135–145. doi:10.1037/a0015681

Başoğlu, M., & Paker, M. (1995). Severity of trauma as predictor of long-term psychological status in survivors of torture. *Journal of Anxiety Disorders*, *9*, 339–350. doi:10.1016/0887-6185(95)00014-F

Başoğlu, M., Paker, M., Özmen zmen, E., Taşdemir, Özmen, & Sahin, D. (1994). Factors related to long-term traumatic stress responses in survivors of torture in Turkey. *Journal of the American Medical Association*, *272*, 357–363.

Black, G. (1993). Genocide in Iraq: The Anfal campaign against the Kurds. *Human Rights Watch, Middle East Watch*, pp. 312–313.

Bolton, P., Michalopoulos, L. M., Ahmed, A., Murray, L. K., & Bass, J. K. (2013). The mental health and psychosocial problems of survivors of torture and genocide in Kurdistan, Northern Iraq: A brief qualitative study. *Torture*, *23*, 1–14.

Bonanno, G. A. (2009). *The other side of sadness: What the new science of bereavement tells us about life after loss*. New York, NY: Basic Books.

Bonanno, G. A., Brewin, C. R., Kaniasty, K., & La Greca, A. M. (2010). Weighing the costs of disaster: Consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest*, *11*, 1–49. doi:10.1177/1529100610387086

Bonanno, G. A., Goorin, L., & Coifman, K. G. (2008). Sadness and grief. In M. Lewis, J. M. Haviland-Jones & L. F. Barrett (Eds.), *Handbook of emotions* (3rd ed., pp. 797–810). New York, NY: Guilford Press.

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting & Clinical Psychology*, *68*, 748–766. doi:10.1037/0022-006X.68.5.748

Campbell, R., Ahrens, C. E., Sefl, T., Wasco, S. M., & Barnes, H. E. (2001). Social reactions to rape victims: Healing and hurtful effects on psychological and physical health outcomes. *Violence and Victims*, *16*, 287–302.

Cardozo, B. L., Vergara, A., Agani, F., & Gotway, C. A. (2000). Mental health, social functioning, and attitudes of Kosovar Albanians following the war in Kosovo. *Journal of the American Medical Association*, *284*, 569–577. doi:10.1001/jama.284.5.569

Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, *59*, 301–328. doi:10.1146/annurev.psych.58.110405.085650

Cutrona, C. E. (1986). Objective determinants of perceived social support. *Journal of Personality and Social Psychology*, *50*, 349–355. doi:10.1037/0022-3514.50.2.349

Davis, R. C., Brickman, E., & Baker, T. (1991). Supportive and unsupportive responses of others to rape victims: Effects on concurrent victim adjustment. *American Journal of Community Psychology*, *19*, 443–451. doi:10.1007/BF00938035

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research & Therapy*, *38*, 319–345. doi:10.1016/S0005-7967(99)00123-0

Faber, A., & Wasserman, S. (2002). Social support and social networks:Synthesis and review. In J. A. Levy & B. A. Pescosolido (Eds.), *Social networks and health (Advances in Medical Sociology*, Vol. *8*, pp. 29–72). Bingley, England: Emerald Group Publishing.

Gorst-Unsworth, C., & Goldenberg, E. (1998). Psychological sequelae of torture and organised violence suffered by refugees from Iraq: Trauma-related factors compared with social factors in exile. *British Journal of Psychiatry*, *172*, 90–94. doi:10.1192/bjp.172.1.90

Gorst-Unsworth, C., Van Velsen, C., & Turner, S. W. (1993). Prospective pilot study of survivors of torture and organized violence: Examining the existential dilemma. *Journal of Nervous and Mental Disease*, *181*, 263–264. doi:10.1097/00005053-199304000-00008

Gotlib, I. H., & Joormann, J. (2010). Cognition and depression: Current status and future directions. *Annual Review of Clinical Psychology*, *6*, 285–312. doi:10.1146/annurev.clinpsy.121208.131305

Hall, B. J., Hobfoll, S. E., Canetti, D., Johnson, R. J., & Galea, S. (2009). The defensive nature of benefit finding during ongoing terrorism: An examination of a national sample of Israeli Jews. *Journal of Social and Clinical Psychology*, *28*, 993–1021. doi:10.1521/jscp.2009.28.8.993

Hall, B. J., Hobfoll, S. E., Palmieri, P. A., Canetti-Nisim, D., Shapira, O., Johnson, R. J., & Galea, S. (2008). The psychological impact of impending forced settler disengagement in Gaza: Trauma and posttraumatic growth. *Journal of Traumatic Stress*, *21*, 22–29. doi:10.1002/jts.20301

Heath, N. M., Hall, B. J., Russ, E. U., Canetti, D., & Hobfoll, S. E. (2012). Reciprocal relationships between resource loss and psychological distress following exposure to political violence: An empirical investigation of COR theory's loss spirals. *Anxiety, Stress & Coping: An International Journal*, *25*, 679–695. doi:10.1080/10615806.2011.628988

Hendriks, S. M., Spijker, J., Licht, C. M., Beekman, A. T., & Penninx, B. W. (2012). Two-year course of anxiety disorders: different across disorders or dimensions? *Acta Psychiatry Scandinavica*, *128*, 212–221. doi:10.1111/acps.12024

Hesbacher, P. T., Rickels, K., Morris, R. J., Newman, H., & Rosenfeld, H. (1980). Psychiatric illness in family practice. *Journal of Clinical Psychiatry*, *41*, 6–10.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*, 513–524. doi:10.1037/0003-066X.44.3.513

Hobfoll, S. E., Mancini, A. D., Hall, B. J., Canetti, D., & Bonanno, G. A. (2011). The limits of resilience: Distress following chronic political violence among Palestinians. *Social Science & Medicine*, *72*, 1400–1408. doi:10.1016/j.socscimed.2011.02.022

IBM. (2009). *IBM PASW (Version 18)*. Armonk, NY: IBM.

Jacobson, N. S., Martell, C. R., & Dimidjian, S. (2001). Behavioral activation treatment for depression: Returning to contextual roots. *Clinical Psychology: Science and Practice*, *8*, 255–270.

Kaniasty, K., & Norris, F. H. (2008). Longitudinal linkages between perceived social support and posttraumatic stress symptoms: Sequential roles of social causation and social selection. *Journal of Traumatic Stress*, *21*, 274–281. doi:10.1002/jts.20334

King, D. W., Taft, C., King, L. A., Hammond, C., & Stone, E. R. (2006). Directionality of the association between social support and posttraumatic stress disorder: A longitudinal investigation. *Journal of Applied Social Psychology*, *36*, 2980–2992. doi:10.1111/j.0021-9029.2006.00138.x

Kinsley, S. F. (1991). Whatever Happened to the Kurds? *Middle East Watch*. Retrieved from http://www.hrw.org/reports/1991/IRAQ913.htm - 4

Kroo, A., & Nagy, H. (2011). Posttraumatic growth among traumatized somali refugees in Hungary. *Journal of Loss and Trauma*, *16*, 440–458. doi:10.1080/15325024.2011.575705

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*, 1198–1202.

Mollica, R. F., Caspi-Yavin, Y., Bollini, P., & Truong, T. (1992). The Harvard Trauma Questionnaire: Validating a cross-cultural instrument for measuring torture, trauma, and posttraumatic stress disorder in Indochinese refugees. *Journal of Nervous and Mental Disease*, *180*, 111–116. doi:10.1097/00005053-199202000-00008

Mollica, R. F., Donelan, K., Tor, S., Lavelle, J., Elias, C., Frankel, M., & Blendon, R. J. (1993). The effect of trauma and confinement on functional health and mental health status of Cambodians living in Thailand-Cambodia border camps. *Journal of the American Medical Association*, *270*, 581–586. doi:10.1001/jama.1993.03510050047025

Prigerson, H. G., Maciejewski, P. K., Reynolds, C. F., 3rd, Bierhals, A. J., Newsom, J. T., Fasiczka, A., . . . Miller, M. (1995). Inventory of Complicated Grief: A scale to measure maladaptive symptoms of loss. *Psychiatry Research*, *59*, 65–79. doi:10.1016/0165-1781(95)02757-2

Prigerson, H. G., Shear, M. K., Jacobs, S. C., Reynolds, C. F., 3rd, Maciejewski, P. K., Davidson, J. R., . . . Zisook, S. (1999). Consensus criteria for traumatic grief. A preliminary empirical test. *British Journal of Psychiatry*, *174*, 67–73. doi:10.1192/bjp.174.1.67

Qouta, S., Punamäki, R.-L., Montgomery, E., & El Sarraj, E. (2007). Predictors of psychological distress and positive resources among Palestinian adolescents: Trauma, child, and mothering characteristics. *Child Abuse & Neglect*, *31*, 699–717. doi:10.1016/j.chiabu.2005.07.007

Salo, J. A., Qouta, S., & Punamäki, R.-L. (2005). Adult attachment, posttraumatic growth and negative emotions among former political prisoners. *Anxiety, Stress & Coping: An International Journal*, *18*, 361–378. doi:10.1080/10615800500289524

Sarraj, E. E., Punamäki, R.-L., Salmi, S., & Summerfield, D. (1996). Experiences of torture and ill-treatment and posttraumatic stress disorder symptoms among Palestinian political prisoners. *Journal of Traumatic Stress*, *9*, 595–606. doi:10.1002/jts.2490090315

Silove, D., Steel, Z., McGorry, P., Miles, V., & Drobny, J. (2002). The impact of torture on post-traumatic stress symptoms in war-affected Tamil refugees and immigrants. *Comprehensive Psychiatry*, *43*, 49–55. doi:10.1053/comp.2002.29843

Solomon, Z., & Dekel, R. (2007). Posttraumatic stress disorder and posttraumatic growth among Israeli ex-POWs. *Journal of Traumatic Stress*, *20*, 303–312. doi:10.1002/jts.20216

Steel, Z., Silove, D., Bird, K., McGorry, P., & Mohan, P. (1999). Pathways from war trauma to posttraumatic stress symptoms among Tamil asylum

seekers, refugees and immigrants. *Journal of Traumatic Stress*, *12*, 421–435. doi:10.1023/A:1024710902534

Turner, S., & Gorst-Unsworth, C. (1990). Psychological sequelae of torture: A descriptive model. *The British Journal of Psychiatry*, *157*, 475–480. doi:10.1192/bjp.157.4.475

Ullman, S. E. (1996). Social reactions, coping strategies, and self-blame attributions in adjustment to sexual assault. *Psychology of Women Quarterly*, *20*, 505–526. doi:10.1111/j.1471-6402.1996.tb00319.x

Ursano, R. J., Grieger, T. A., & McCarroll, J. E. (1996). Prevention of post-traumatic stress: Consultation, training, and early treatment. In B. A. Van de Kolk, A. C. McFarlane, & L. Weisaeth (Eds.), *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 441–462). New York, NY: Guilford Press.

Vaux, A. (1985). Variations in social support associated with gender, ethnicity and age. *Journal of Social Issues*, *41*, 89–110. doi:10.1111/j.1540-4560.1985.tb01118.x

Weiss, R. S. (1974). The provisions of social relationships. In Z. Rubin (Ed.), *Doing unto others* (pp. 17–26). Englewood Cliffs, NJ: Prentice Hall.

Winokur, A., Winokur, D. F., Rickels, K., & Cox, D. S. (1984). Symptoms of emotional distress in a family planning service: Stability over a four-week period. *British Journal of Psychiatry*, *144*, 395–399. doi:10.1192/bjp.144.4.395