

A Multivariate Contextual Analysis of Torture and Cruel, Inhuman, and Degrading Treatments: Implications for an Evidence-Based Definition of Torture

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Current thinking on what constitutes torture in a detention/interrogation setting focuses solely on particular procedures, without regard for contextual factors that mediate traumatic stress. The present study examined stressor interactions that determined severity and psychological impact of captivity stressors in 432 torture survivors in former Yugoslavia countries and Turkey. A principal components analysis of 46 captivity stressors measured by an Exposure to Torture Scale identified meaningful stressor clusters, which suggested that multiple detention procedures were used in combination to maximize their impact. Perceived torture severity related to 'cruel, inhuman, and degrading' treatments (CIDT) but not to physical torture. Posttraumatic stress disorder related to war-related captivity, deprivation of basic needs, sexual torture, and exposure to extreme temperatures, isolation, and forced stress positions but not to physical torture. CIDT increased posttraumatic stress disorder risk by 71%. Fear- and helplessness-inducing effects of captivity and CIDT appear to be the major determinants of perceived severity of torture and psychological damage in detainees. Considerations on what constitutes torture need to take into account the contextual processes in a captivity setting that mediate these effects.

Keywords: torture, torture definition, PTSD, resilience

Much of the debate on what constitutes torture after reports of human rights abuses by the United States military in Guantanamo Bay, Iraq, and Afghanistan has not been informed by scientific evidence, reflecting in part the scarcity of research in this area. A priori assumptions of a distinction between torture and 'cruel, inhuman, and degrading' treatments (CIDT) have led some to argue that CIDT are associated with less mental suffering than torture and therefore more acceptable in exceptional circumstances. Using an Exposure to Torture Scale (ETS) to elicit information on perceived distress associated with 45 captivity stressors, a previous study of 279 tortured war survivors from former Yugoslavia countries found no evidence of a distinction between torture and CIDT in terms of their psychological impact. Because the ETS included some captivity stressors that resembled "ordinary" stressful life events, questions were raised as to whether the findings imply an overly inclusive definition of torture that down-

plays the importance of the problem of torture (Başoğlu & Livanou, 2008; Bracha & Hayashi, 2008).

An adequate understanding of how captivity experiences differ from ostensibly similar life events in other settings requires close attention to various contextual processes that enhance their impact. For example, beating while blindfolded and hands tied involves three different stressors. Assuming they have effects X , Y , and Z when administered separately (or in different contexts), the cumulative impact of their concurrent administration is not simply additive (i.e., $X + Y + Z$) but multiplicative (i.e., $X * Y * Z$), because blocking visual or behavioral control greatly magnifies the threat value of beating (Başoğlu & Mineka, 1992). Thus, the distress associated with each event is largely determined by the interactional (or contextual) impact of all three events, resulting in strong covariance among their distressing effects. In the previous study, we were unable to examine the complex interactions among 45 stressor events and their contribution to posttraumatic stress reactions, because this required multivariate analyses in a larger sample (Başoğlu, Livanou, & Crnobaric, 2007). The present study examined these issues in an expanded sample of 432 survivors of torture, including 202 survivors from Turkey, who were mostly tortured during the years that followed the military coup in 1980. A larger sample also meant greater heterogeneity in terms of the sociopolitical context of torture, trauma severity, and factors that moderate the effects of torture, such as resilience.

A sound theoretical framework is essential in understanding the traumatic processes in a captivity setting. In a learning theory formulation of torture (Başoğlu & Mineka, 1992) based on experimental models of traumatic stress (Overmier & Seligman, 1967; Seligman, 1975; Seligman & Maier, 1967; see also

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a recent review by Mineka & Zinbarg, 2006), we had pointed to striking parallels between torture in humans and inescapable shock experiments in animals, both involving a situation where the impact of a stressor is maximized by blocking total control over it. This formulation points to certain contextual characteristics of torture that distinguish it from other stressful events. These include (a) intent; (b) purpose (e.g., to extract information/confession or as an act of punishment or vengeance); (c) exposures to often multiple, unpredictable, uncontrollable, and potentially traumatic stressors likely to induce intense distress in most people; and (d) deliberate and systematic attempts to remove all forms of control from the person to maximize stressor impact and induce a state of total helplessness. This formulation implies that, when the first two criteria are met, a particular stressor constitutes torture to the extent that it serves to remove control from the person to induce total helplessness.

The present report tested some hypotheses implied by this formulation. If loss of control were the critical mediator of traumatic stress, then individuals who are psychologically better prepared to cope with torture (e.g., trained militant activists of a political cause) would perceive less distress during torture (Hypothesis 1). Second, if torture involves concurrently or sequentially administered stressor events designed to maximize loss of control, then this would lead to highly intercorrelated stressor variables (or "stressor clusters") in retrospective assessment, reflecting not only correlated occurrences of the events but also interactions among their distressing effects. Such stressor clusters were examined by a principal components analysis of the ETS items. In view of the primary role of fear in traumatic stress (Başoğlu, Kılıç, Şalcıoğlu, & Livanou, 2004; Başoğlu et al., 2005; Şalcıoğlu, 2004) CIDT stressors involving distress- or fear-inducing and control removal strategies were expected to form a large cluster representing perceived overall severity of torture (Hypothesis 2). The stressor clusters were also expected to reflect nonrandom combinations of detention procedures that were meaningful with respect to both their underlying purpose and likely psychological mechanisms responsible for their interactional effects (Hypothesis 3). The associations between captivity stressors and posttraumatic stress disorder (PTSD) were examined, testing the hypothesis that (a) CIDT are stronger predictors of PTSD than physical torture independent of the captivity setting and (b) stressor clusters, rather than individual stressors, would relate to PTSD, because they reflect better the cumulative impact of stressor events (Hypothesis 4). The present study also allowed comparison of the impact of captivity in two contextually different political settings. Relative to an experience of detention by state authorities for an alleged crime, being held captive by the enemy in the course of a violent armed conflict would be associated with greater perceived threat to life and consequently higher rates of PTSD, independent of the nature and severity of torture experienced (Hypothesis 5).

Method

Study Design and Sampling

The present report was based on data from two studies conducted as part of the same 10-year research program between 1992 and 2002.

Study 1 was conducted in Turkey in three phases between 1992 and 1999. Phase 1 (1992–93; Başoğlu et al., 1994a) involved 55 left-wing political activists, who had been tortured during detention and/or imprisonment in the late 1970s and throughout the 1980s. Phase 2 (1994–95; Başoğlu et al., 1997) involved 34 nonactivists tortured for nonpolitical reasons, whereas Phase 3 (1997–1999; Başoğlu, 1999) involved a mixed group of 113 political activists and nonactivists. Most participants were recruited from among consecutive referrals to two human rights associations in Istanbul. The method and procedures were detailed in previous reports (Başoğlu et al., 1997; Başoğlu et al., 1994a).

Study 2 (2000–2002) involved 1,358 war survivors from former Yugoslavia countries (see Başoğlu et al., 2005 for method details). The present report included 230 survivors of torture from this study (81 from Belgrade, 46 from Rijeka, 44 from Sarajevo, and 59 from Banja Luka). The Belgrade sample consisted mainly of former army conscripts recruited from two associations for war veterans and prisoners-of-war in Belgrade. The Banja Luka and Sarajevo samples included both former soldiers and civilian ex-detainees recruited from the community. The Rijeka sample consisted mostly of men who had been captured in Vukovar and sent to collective camps.

Our previous study (Başoğlu et al., 2007) was based on 279 survivors from Study 2. In 49 survivors, a diagnosis of PTSD related to a war-related event other than torture, so these cases were omitted from the present report to avoid analyses based on different subsets of the sample. The characteristics of Study 2 sample are thus not identical to those reported in the previous article.

Measures Selected for Analysis

Information on personal history, political activity, and captivity experience was obtained using the Semistructured Interview for Survivors of Torture (SIST; Başoğlu et al., 1997; Başoğlu et al., 1994a) in Study 1 and Semistructured Interview for Survivors of War (SISOW; Başoğlu et al., 2005) in Study 2. Both the SIST and SISOW included an Exposure to Torture Scale (ETS), which provided information on 46 different captivity stressors (45 in Study 1) and distress (e.g., anxiety, fear, discomfort, or other similar emotions) associated with each stressor event (0 = not at all distressing, 1 = slightly distressing, 2 = moderately distressing, 3 = fairly distressing, 4 = extremely distressing). When a stressor event was reported as absent, the distress rating was coded as 0, indicating no distress experienced with respect to that event. One item (witnessing torture of close ones) not used in Study 1 was omitted. A new item (genital/anal torture) was included, because of relatively high endorsement rates in Study 1. The selection of the ETS items was originally based on survivor reports of most common torture experiences in a detention/captivity setting. Evidence on the concurrent validity and predictive validity of distress ratings can be found in our previous reports (Başoğlu et al., 2007; Başoğlu et al., 1997; Başoğlu & Parker, 1995; Başoğlu et al., 1994b).

Several measures of torture severity were selected for analysis. The total number of all stressor events experienced was used as a measure of "objective" torture severity. The ETS included a Global Distress Rating, which measured perceived severity of overall torture experience (0 = no distress at all, 4 = extreme distress). As this rating was not used in the first two phases (Başoğlu et al., 1997; Başoğlu et al., 1994a) of Study 1 (89 cases),

it was omitted from the present study and replaced by a Mean Distress Score (0–4), which was created by averaging the distress ratings of all stressor events reported (correlation with the Global Distress Rating = 0.53, $p < .001$). This score reflected the cumulative impact of stressors, because it was based on “weighted” distress scores that indicated not only exposure to particular events but also the intensity of associated distress. In addition, as an averaged rating, it reflected better the experience of survivors who were exposed to fewer stressors events, which could have been just as traumatic as the experience of those exposed to larger numbers of stressors.

Resilience was measured by Psychological Preparedness for Torture (PPT) scale (Başoğlu et al., 1997), which assessed the extent of prior involvement in political activity, commitment to a political or war cause, training in stoicism or coping with similar stressors, knowledge about torture events, and expectedness of the torture experience. As the scale items were not identical in the two studies, only an assessor-rated global measure of PPT (0 = very well prepared, 1 = fairly, 2 = slightly, 3 = not at all prepared) common to both studies was selected for analysis. This rating correlated highly with the total PPT score in both Study 1 ($r = .78$, $p < .001$) and Study 2 ($r = .77$, $p < .001$).

PTSD was assessed using the Clinician-Administered PTSD Scale (Blake et al., 1990), except in 55 survivors (first phase of Study 1), who were assessed using the Structured Clinical Interview for *DSM-III-R* (SCID; Spitzer & Williams, 1983) PTSD diagnosis in these cases was revised according to the *DSM-IV* criteria. PTSD diagnosis was used as the outcome measure, as this is the most common outcome of torture (Başoğlu, Jaranson, Mollica, & Kastrup, 2001). Current instead of lifetime diagnosis of PTSD was used, because we were interested in examining stressor-response associations in the longest term possible after torture (i.e., at the time of assessment).

Data Analyses

The study samples were first compared on variables of interest and then pooled for subsequent analyses. A principal components analysis (PCA) of the 46 ETS items examined the clustering of stressors. PCA provides a useful summary of variables that are correlated with one another but largely independent of other subsets of variables by combining them into components. Components reflect underlying processes that have created the correlations among variables. Component loadings are correlations between observed variables and extracted components. The sizes of the loading reflect the extent of the relationship between each observed variable and each component. Once the components are extracted, they can be rotated orthogonally (Varimax rotation) in three-dimensional space to maximize high correlations and minimize low ones. After rotation, loadings that are high become higher and loadings that are low become lower. This procedure facilitates interpretation of the components by minimizing variables with high loadings on more than one component. The scores of each study subject can be computed as component score, which are estimates of the scores subjects would have received on the components had the underlying constructs been measured directly. Higher scores on a component reflect higher scores on each of the variables that make up the component.

Loadings above 0.30 were taken into consideration in interpreting the components. First, the unrotated components were examined to identify the stressor events that accounted for the overall severity of torture. The components were then rotated orthogonally (Varimax) to examine the stressor clusters in more detail. The participants' scores on both unrotated and rotated components were computed for use in further analyses. Hierarchical logistic regression analyses examined the associations between PTSD and individual stressor events and stressor clusters. Between-groups comparisons involved chi-square tests, independent t tests, or one-way ANOVAs. The data were analyzed using a software program (SPSS Version 12; SPSS Inc., Chicago, IL).

Results

Sample Characteristics

Table 1 and Table 2 compare the characteristics of the study samples. Study 1 participants were younger, more highly educated, and had higher levels of psychological preparedness for torture (hereafter resilience) than Study 2 participants, reflecting in part the general characteristics of political activists in Turkey in the 1980s. They also had more exposure to more than half of the 46 stressors, the differences being more marked on Palestinian hanging, electrical torture, genital/anal torture, falaqa, hanging by the hands, threats of rape, isolation, and blindfolding. Nevertheless, they rated many events from all stressor categories (except sexual torture) as less distressing and had less PTSD than did Study 2 participants.

Resilience and Perceived Severity of Torture

In pooled samples higher resilience scores significantly correlated with less distress in relation to 26 of the 46 stressor events (all $ps < .001$), lower Mean Distress Scores ($r = .35$, $p < .001$), and lower Global Distress Scores ($r = .22$, $p < .001$), despite the fact that higher resilience also meant exposure to greater number of stressors ($r = .23$, $p < .001$). Figure 1 shows the differences in Mean Distress Scores (computed within each category) across three resilience levels in each stressor category shown in Table 2. The survivors with the lowest resilience level showed relatively less differences in their distress ratings across different stressor categories. Consistent with our previous report (Başoğlu et al., 2007), physical torture showed considerable overlapping with CIDT, particularly sexual torture and psychological manipulations. On the other hand, more resilient survivors had significantly less distress in relation to all stressor groups (including physical torture and forced stress positions), the difference being more marked with respect to psychological manipulations, humiliating treatment, and deprivation of basic needs. The latter events were rated as only slightly to moderately distressing in 40 highly resilient survivors (36 in Study 1 and 4 in Study 2). Thus, Hypothesis 1 was supported.

The severity of torture in these 40 survivors highlights the remarkable nature of their resilience. In 21 survivors (Study 1 participants tortured during the military regime in the 1980s in Turkey) data were available on the number of times each stressor event was experienced on different occasions. These survivors endured on average 24 ($SD = 6$, range 16–35) different types of

Table 1
Sample Characteristics

	Study 1	Study 2	χ^2	df	p*
	N (%)	N (%)			
Gender (male)	127 (62.9)	196 (85.2)	27.3	1	.001
Marital status (married)	84 (41.6)	156 (67.8)	28.9	1	.001
Education					
No schooling/primary school	64 (31.7)	35 (15.2)	110.4	3	.001
Secondary school	20 (9.9)	134 (58.3)			
High school	66 (32.7)	30 (13.0)			
University/postgraduate	52 (25.7)	31 (13.5)			
History of psychiatric illness	17 (8.5)	12 (5.2)	1.38	1	.24
Family history of psychiatric illness	35 (17.3)	41 (17.8)	0.00	1	.99
Imprisonment [‡]	120 (59.4)	—	—	—	—
Psychological preparedness for torture					
Very much prepared	36 (17.8)	4 (1.7)	57.0	3	.001
Fairly prepared	50 (24.8)	28 (12.2)			
Slightly prepared	66 (32.7)	139 (60.4)			
Not prepared at all	50 (24.8)	59 (25.7)			
Lifetime PTSD	100 (53.2)	177 (77.3)	25.8	1	.001
Current PTSD	74 (36.8)	130 (56.5)	15.9	1	.001
	<i>M (SD)</i>	<i>M (SD)</i>	<i>t</i>	<i>df</i>	<i>p*</i>
Age	30.4 (8.1)	44.7 (10.2)	-16.2	425.5	.001
Income level (1-4)	1.5 (0.7)	1.5 (0.7)	-0.1	430	.93
Number of stressor events during captivity	22.4 (8.4)	19.1 (7.1)	4.4	395.9	.001
Number of physical torture events	4.7 (2.3)	2.5 (1.7)	10.9	363.9	.001
Number of CIDT events [†]	17.7 (6.6)	16.6 (5.9)	1.9	405.8	.06
Mean Distress Score	2.4 (0.7)	3.1 (0.6)	-11.3	430	.001
Time since last torture (months)	44.3 (46.8)	94.8 (24.9)	-13.7	293.3	.001
Duration of detention (days) [‡]	34.5 (57.8)	—	—	—	—
Duration of imprisonment (months) [‡]	34.5 (44.3)	—	—	—	—

[†] CIDT = Cruel, inhuman, and degrading treatment. [‡] No comparison made because variable not common to both studies. * Bonferroni adjusted significance level set to 0.003.

torture, with mean total of 305 ($SD = 169$, range 65–719) exposures to different stressor events (excluding beating and verbal abuse that were too many to count), during a mean of 84.5 months ($SD = 60$) of captivity. Eighty-six percent of these survivors endured electrical torture (mean 14 times, $SD = 13$), 48% hanging by the hands (mean 12 times, $SD = 10$), and 67% falaqa (mean 15 times, $SD = 12$). Nevertheless, their Mean Distress Scores were in the moderate range ($M = 1.9$, $SD = 0.6$); only two (10%) had moderately severe PTSD at the time of assessment.

Determinants of Perceived Severity of Torture

Table 3 shows the results of principal components analysis of the ETS distress ratings, which yielded 12 components (58.7% of the total variance). Only three components with high loadings on more than two items were presented, because the others were not interpretable. Before rotation, the first three components provided a reasonably clear distinction between CIDT, physical torture, and sexual torture. Component 1 showed a clustering of most CIDT stressors, as hypothesized. Although three physical stressors (beating on the body or ears and pulling/dragging by the hair) showed high loadings on this component, these were relatively low-intensity physical stressors compared with the nature of physical torture represented by Component 2 (e.g., electrical torture, hanging, falaqa, genital/anal torture).

Figure 2 compares Study 1 with Study 2 participants in their mean scores on the first two components. A score of 0 reflects the sample mean on each component and positive and negative scores indicate scores above and below the sample mean, respectively. Physical torture strongly discriminated Study 1 from and Study 2 participants, as indicated by the large difference in their scores on Component 2. Although Study 1 participants had lower scores on Component 1 than did Study 2 participants, this difference was less marked. Thus, Study 1 participants contributed substantially to the variance in severity of physical torture when the two study samples were pooled. Mean Distress Scores and Global Distress Ratings correlated positively with CIDT scores ($r = .58$ and $r = .35$, respectively, $ps < .001$) and negatively with physical torture scores ($r = -0.39$, $p < .001$ and $r = -0.16$, $p < .01$, respectively), showing that CIDT accounted for perceived overall severity of torture. These findings supported Hypothesis 2.

Stressor Clusters and Interactions

Consistent with Hypothesis 3, the rotated components (see Table 4) revealed fairly distinct stressor clusters, which were meaningful with respect to stressor interactions and the purpose underlying combined use of various procedures, as will be discussed later. Rotated Component 1 represented distress associated with deprivation of basic needs and the adverse circumstances of

Table 2
Comparison of Study Samples in Frequency of Reported Stressor Events and Associated Distress

Stressor categories and events	Endorsement rates				Perceived distress ratings				
	Study 1	Study 2	χ^2	p^\ddagger	Study 1	Study 2	t	df	p^\ddagger
	N (%)	N (%)			Mean (SD)	Mean (SD)			
Sexual torture									
Rape	18 (8.9)	15 (6.5)	0.6	.45	3.4 (1.1)	3.9 (0.5)	1.7	25.2	.11
Fondling of genitals	68 (33.7)	28 (12.2)	27.5	.001	3.3 (0.9)	3.7 (0.6)	2.6	82.2	.011
Sexual advances ($n = 343$) ^f	60 (53.1)	39 (17.0)	46.5	.001	3.3 (0.9)	3.5 (0.8)	1.2	97	.23
Physical torture									
Palestinian hanging* ($n = 343$) ^f	57 (50.4)	3 (1.3)	123.4	.001	3.6 (0.5)	3.7 (0.6)	0.3	58	.78
Electrical torture	122 (60.4)	22 (9.6)	122.8	.001	3.3 (0.9)	3.7 (0.6)	2.3	41.2	.02
Genital/anal torture ^h	51 (25.2)	1 (0.4)	—	—	3.2 (0.9)	4 (—)	—	—	—
Falaqa (beating of the soles of the feet)	107 (53.0)	44 (19.1)	52.7	.001	2.9 (0.9)	3.6 (0.6)	4.6	147	.001
Burning parts of body	29 (14.4)	18 (7.8)	4.1	.04	2.5 (1.1)	3.6 (0.6)	4.5	44.9	.001
Forced extraction of teeth	2 (1.0)	9 (3.9)	—	—	3.0 (1.4)	3.6 (0.7)	—	—	—
Beating	197 (97.5)	205 (89.1)	10.5	.001	2.7 (1.0)	3.5 (0.7)	10.4	338.4	.001
Hanging by the hands	91 (45.0)	18 (7.8)	77.0	.001	3.4 (0.7)	3.5 (0.6)	0.3	105	.80
Stretching of extremities	32 (15.8)	20 (8.7)	4.5	.03	3.3 (0.8)	3.5 (1.1)	1.0	50	.35
Needles under toenails or fingernails	12 (5.9)	5 (2.2)	3.1	.08	3.0 (0.9)	3.4 (0.9)	0.9	15	.40
Beating over the ears with cupped hands	79 (39.1)	96 (41.7)	0.2	.65	2.6 (0.9)	3.5 (0.7)	6.9	135.4	.001
Pulling/dragging by hair	163 (80.7)	140 (60.9)	19.2	.001	2.3 (1.0)	3.2 (0.8)	8.4	298.5	.001
Psychological manipulations									
Asphyxiation/suffocation	57 (28.2)	27 (11.7)	17.6	.001	2.9 (1.0)	3.8 (0.5)	5.3	80.9	.001
Sham executions	63 (31.2)	81 (35.2)	0.6	.43	2.3 (1.3)	3.7 (0.7)	7.6	84.2	.001
Threats of rape	115 (56.9)	40 (17.4)	71.4	.001	2.9 (1.1)	3.6 (0.6)	5.2	124.4	.001
Threats to family	130 (64.4)	121 (52.6)	5.6	.02	2.7 (1.1)	3.4 (0.9)	5.2	245.8	.001
Witnessing torture	147 (72.8)	173 (75.2)	0.2	.64	3.3 (0.7)	3.4 (0.6)	1.2	317	.23
Threats of death	166 (82.2)	209 (90.9)	6.4	.012	2.0 (1.1)	3.4 (0.9)	12.4	301.1	.001
Threats of torture	170 (84.2)	174 (75.7)	4.3	.04	2.2 (1.0)	3.3 (0.8)	10.7	313.6	.001
Fluctuating interrogator attitude	158 (78.2)	148 (64.3)	9.4	.002	1.5 (1.2)	2.9 (1.0)	11.0	300.5	.001
Humiliating treatment									
Throwing feces/urine at detainee	12 (5.9)	35 (15.3)	8.7	.003	2.1 (1.7)	3.4 (0.7)	2.6	12.2	.02
Excrement in food	39 (19.3)	11 (4.8)	20.8	.001	2.3 (1.3)	3.2 (0.9)	2.2	47	.03
Stripping naked	124 (61.4)	88 (38.3)	22.1	.001	2.4 (1.1)	3.2 (0.9)	6.2	206.2	.001
Verbal abuse	201 (99.5)	221 (96.1)	4.2	.04	2.0 (1.2)	3.0 (1.0)	9.5	373.2	.001
Humiliating treatment ($n = 343$) ^f	112 (99.1)	213 (92.6)	5.2	.02	2.0 (1.1)	3.1 (1.0)	9.2	198.9	.001
Forced stress positions									
Rope bondage	31 (15.3)	112 (48.7)	52.5	.001	2.8 (1.1)	3.3 (0.7)	2.5	36.7	.02
Forced standing with weight on	47 (23.3)	25 (10.9)	11.0	.001	2.7 (1.0)	3.2 (0.9)	1.8	70	.08
Forced standing	156 (77.2)	175 (76.1)	0.0	.87	2.3 (1.1)	3.1 (0.9)	6.7	291.0	.001
Restriction of movement	77 (38.1)	214 (93.0)	145.1	.001	2.4 (1.1)	2.9 (1.0)	3.5	122.5	.001
Sensory discomfort									
Exposure to extreme hot/cold	116 (57.4)	96 (41.7)	10.0	.002	2.3 (1.0)	3.0 (0.9)	5.7	210	.001
Exposure to bright light	53 (26.2)	55 (23.9)	0.2	.66	1.9 (1.0)	2.9 (0.9)	5.8	106	.001
Exposure to loud music	113 (55.9)	73 (31.7)	24.7	.001	2.3 (1.1)	2.7 (0.9)	2.6	184	.011
Cold showers	105 (52.0)	76 (33.0)	15.1	.001	2.6 (1.1)	2.9 (1.0)	1.9	179	.06
Deprivation of basic needs									
Isolation/solitary confinement	117 (57.9)	74 (32.2)	27.9	.001	2.4 (1.1)	3.5 (0.8)	8.9	184.3	.001
Blindfolding	183 (90.6)	63 (27.5)	171.8	.001	2.5 (1.1)	3.3 (0.9)	5.8	129.3	.001
Prevention of urination/defecation	125 (61.9)	101 (43.9)	13.2	.001	1.8 (1.0)	3.3 (0.8)	12.5	221.4	.001
Sleep deprivation	141 (69.8)	164 (71.3)	0.1	.81	2.3 (1.0)	3.1 (0.8)	8.2	260.3	.001
Water deprivation	110 (54.5)	141 (61.6)	2.0	.16	2.2 (1.1)	3.0 (0.9)	6.3	214.4	.001
Deprivation of medical care	134 (66.3)	120 (52.2)	8.3	.004	1.9 (1.0)	2.9 (1.1)	8.0	252	.001
Prevention of hygiene	144 (71.3)	180 (78.3)	2.4	.12	1.9 (1.0)	2.8 (0.9)	8.6	321	.001
Food deprivation	114 (56.4)	175 (76.1)	17.9	.001	1.7 (1.0)	2.7 (0.9)	9.0	287	.001
Denial of privacy	112 (55.4)	186 (80.9)	31.3	.001	2.2 (1.2)	2.6 (1.1)	3.1	296	.002
Exposure to infested surroundings	64 (31.7)	161 (70.0)	61.7	.001	1.7 (1.1)	2.7 (1.0)	6.4	222	.001

[†] All df 's = 1. [‡] Bonferroni adjusted significance level set to 0.001. * Hanging by the wrists tied at the back. ^f Exposure to Torture Scale item not used in first phase of Study 1 ($n = 55$). ^h Includes twisting of testicles, beating on the genitals, insertion of a police baton into anus.

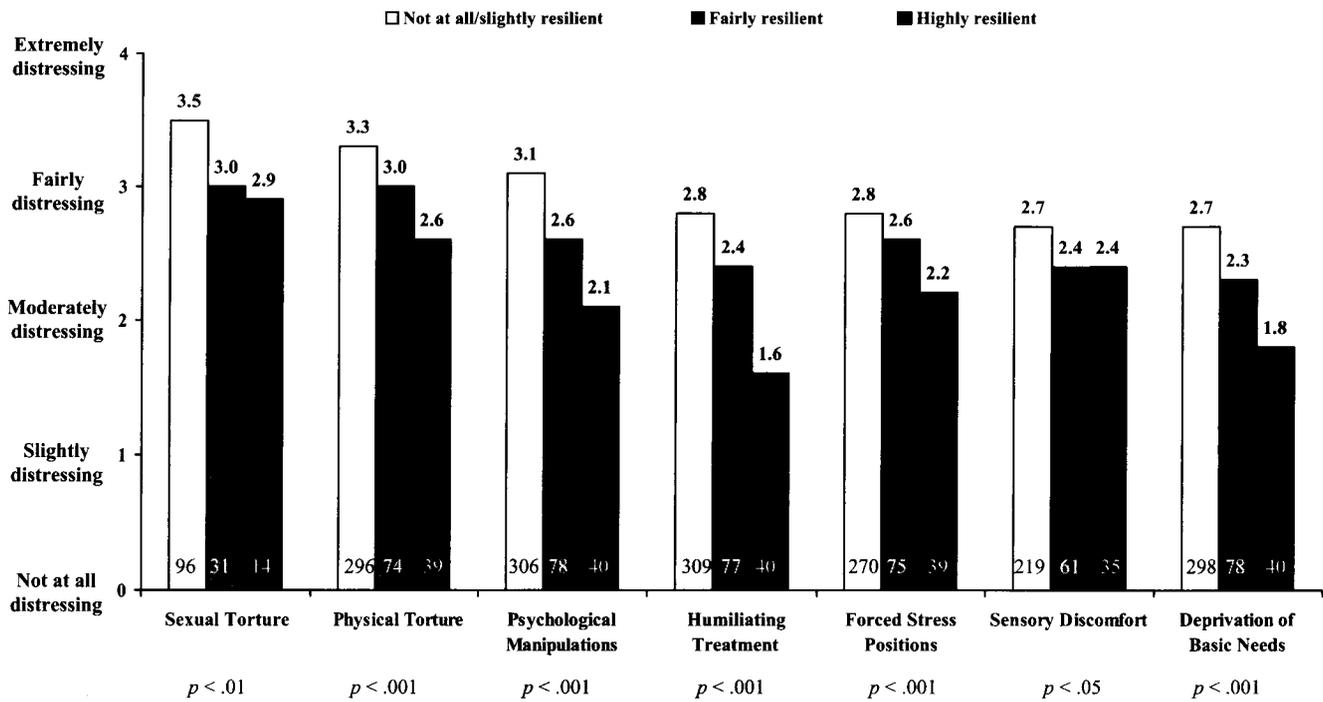


Figure 1. Effects of resilience on perceived distress associated with different types of stressor events. Not at all/slightly resilient ratings combined because of small differences in Mean Distress Scores. Mean Distress Ratings based on averaged distress ratings within each stressor category. Differences across resilience levels tested by one-way ANOVAs. Number of cases in each analysis indicated within the bars.

the captivity environment. The second and third components were characterized by physical forms of torture. Component 4 represented sexual torture, whereas distress associated with extreme temperatures, isolation, forced stress positions, and being stripped naked characterized Component 5. Overall, the rotated components provided a fairly clear separation between CIDT and physical torture.

Associations Between Stressor Events and PTSD

A logistic regression analysis was conducted, using the distress ratings of the 46 ETS items as independent variables. Context of captivity experience (1 = nonwar-related, 2 = war-related), age, sex, education, marital status, resilience scores, and time since torture were entered at the first step to control for sampling differences and the distress ratings at the second step. The prediction model, which accounted for 31% of the variance, was reliable ($\chi^2 = 106.6$, $df = 53$, $p < .001$) and provided a good fit (Hosmer and Lemeshow $\chi^2 = 5.6$, $df = 8$, $p = .69$). After Step 1 ($\chi^2 = 31.8$, $df = 7$, $p < .001$, Nagelkerke $R^2 = 0.10$), the stressor variables explained a further 21% of the variance in PTSD ($\chi^2 = 74.8$, $df = 46$, $p < .01$, Nagelkerke $R^2 = .31$) at Step 2. In the full regression model, however, only lower education (OR = 0.78, 95% CI = 0.62–0.97, $p = .03$) showed significant prediction, whereas none of the individual stressors related to PTSD.

Two further logistic regression analyses were conducted, using the unrotated and the rotated component scores as the independent variables in turn. The first analysis examined how overall perceived severity of torture related to PTSD, whereas the second

analysis examined the associations between stressor clusters and PTSD (Table 5a and Table 5b). In both analyses, war-related captivity was the strongest predictor, being associated with 2.7 times greater risk of PTSD. CIDT increased the risk of PTSD by 71%. After rotation, all stressor clusters except those involving physical torture related to PTSD. These findings applied to all survivors, regardless of their resilience levels. Hypothesis 4 and Hypothesis 5 were supported.

To examine the actual rates of PTSD associated with higher versus lower severity levels of CIDT and physical torture, the first two unrotated component scores were plotted against each other. Figure 3 shows that PTSD risk was nearly doubled at higher intensity levels of CIDT (lower vs. upper left quadrants), whereas the risk associated with low versus high intensity physical torture (lower left vs. lower right quadrants) was about the same. Also worth noting was the substantial risk of PTSD associated with lower intensity levels of both CIDT and physical torture (lower left quadrant).

Discussion

A larger sample with greater variance in severity of physical torture and resilience levels, combined with multivariate analyses that better match the complexity of events in a captivity setting, conferred a distinct methodological advantage over our previous study (Başoğlu et al., 2007) in examining the relative effects of CIDT and physical torture. In that study, we had used a categorical distinction between physical torture and CIDT to examine their effects; whereas the present study was based on continuous mea-

Table 3
Principal Components Analysis of Exposure to Torture Scale
Distress Ratings: Unrotated Solution[†]

	Unrotated components [‡]		
	1	2	3
Food deprivation	.68		
Sleep deprivation	.65		
Prevention of hygiene	.65		
Water deprivation	.65		
Pulling/dragging by hair	.60		
Forced standing	.60		
Beating over the ears	.59		
Denial of privacy	.58		
Infested surroundings	.58	-.34	
Restriction of movement	.54	-.41	
Threats of torture	.54		
Threats of death	.51	-.43	
Rope bondage	.51		
Prevention of urination/defecation	.50		
Deprivation of medical care	.49		
Witnessing torture	.48		
Exposure to extreme hot/cold	.46		
Stripping naked	.45	.39	
Beating	.45		
Fluctuations in interrogator attitude	.44		
Cold showers	.44	.39	
Exposure to bright light	.43		
Sham executions	.42		
Throwing feces/urine at detainee	.42		
Isolation/solitary confinement	.41		
Electrical torture		.71	
Hanging by the hands		.68	
Palestinian hanging		.54	
Humiliating treatment	.46	-.53	.35
Blindfolding		.51	
Falaqa (beating the soles of the feet)		.47	
Verbal abuse	.39	-.43	
Genital/anal torture		.41	-.36
Stretching of extremities		.36	
Sexual advances		.35	.68
Rape			.57
Fondling of genitals		.43	.56
Threats of rape		.52	.53
Needles under toenails/fingernails		.33	
Exposure to loud music	.34		
Asphyxiation/suffocation	.35	.31	
Threats against family	.35		
Forced standing with weight on	.37	.32	
Eigenvalue	8.3	4.8	2.4
Variance explained	17.9	10.5	5.3

[†] Components with high loadings on less than three items not shown. [‡] Only variables with loadings > 0.30 shown.

sures of the subjective impact of stressor events, which are more reliable predictors of psychological outcome than mere exposure to stressors (Başoğlu & Paker, 1995).

The present study advances previous findings (Başoğlu et al., 2007) in showing that CIDT is not only associated with greater perceived severity of torture but also pose a greater risk of prolonged mental harm. Such risk is probably underestimated in this study, because perceived distress is a weaker predictor of PTSD than perceived uncontrollability of stressors (Başoğlu et al., 2007) (not examined in this study because of unavailability of data in all cases). The lack of an association between physical torture and

PTSD might be explained by the fact that survivors are often able to use effective cognitive and behavioral coping strategies (e.g., cognitive dissociation, depersonalization; detailed in Başoğlu & Mineka, 1992) to reduce pain-induced distress. Another well-known psychological defense against extreme pain is release of endogenous opioids. With extensive exposure to uncontrollable physical stressors, the opioid release becomes conditioned to the onset of painful stimulation so that it occurs very rapidly after their onset (Maier, Drugan, & Grau, 1982). Indeed, some survivors describe threats (or anticipation) of electrical torture, for example, as far more distressing than the actual process itself, because the latter is often accompanied by a general numbing in the body (Başoğlu & Mineka, 1992). Coping with the cumulative effects of multiple and prolonged CIDT stressors, on the other hand, might be more difficult.

The ETS components not only provided a general profile of various torture methods practiced in real life situations but also revealed various contextual characteristics of the captivity setting that are highly relevant to the definition of torture. Potentially life-threatening (e.g., deprivation of basic needs) and fear-inducing (e.g., threats of harm to self and close ones, sham executions, asphyxiation) treatments were the major determinants of perceived severity of the torture experience. Thus, appraisal of threat, which characterized the overall context of captivity, appeared to be the mediator of distress and chronic PTSD in survivors. Furthermore, the stressor clusters provided clues regarding the intent in combined use of particular torture methods, that is, to maximize psychological impact by enhancing the unpredictability and uncontrollability of stressors. Some likely examples include (a) deprivation of multiple basic needs (rotated Component 1); (b) threats of torture/death during beating or exposure to forced stress positions to maximize fear, restriction of movement during beating to remove behavioral control, humiliating treatment to induce helplessness through inability to act on anger (rotated Component 2); (c) removing visual control over physical torture events and thus making them more unpredictable by blindfolding or removing behavioral control over electrical torture by combining it with hanging by the hands (rotated Component 3), and exposure to cold temperatures/showers, stress positions, or isolation while naked (rotated Component 5). The clustering of these stressors also reflected their mutually enhancing effects. Some stressor associations might also reflect sequentially administered stressors within a certain period of time or even throughout captivity. In such cases, sequential stressors might have a cumulative impact in overwhelming a person's control strategies. Overall, these findings lend support to the validity of the four defining characteristics of torture outlined in the introduction.

War-related captivity experience appeared to be associated with greater PTSD risk than detention/imprisonment for political or other reasons, independent of the nature and severity of torture. Although this finding might be due in part to sampling differences, it might also reflect greater perceived threat to life among the survivors from former Yugoslavia countries, associated with being held captive by the enemy in detention camps under extremely precarious conditions. This finding also implies that captivity-induced traumatic stress need not always directly result from the captors' behaviors during interrogation and that a potentially life-threatening environment could be as psychologically damaging as

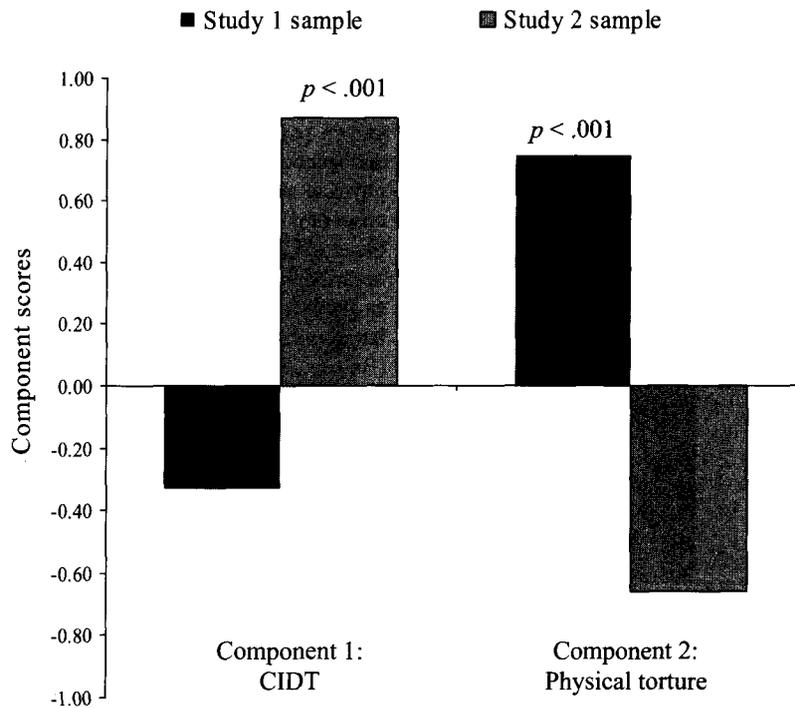


Figure 2. Comparison of study samples in component scores. Note: CIDT = Cruel, inhuman, and degrading treatment.

the interrogation itself. Such an environment might also have contributed to the relatively high rate of PTSD (34%) associated with the lowest severity level of torture (lower left quadrant in Figure 3).

Much of the debate on torture has centered on whether particular forms of CIDT (e.g., asphyxiation/suffocation, sleep deprivation, forced stress positions, etc.) constitute torture. Although the present study showed that these stressors contributed to the traumatic process (to the extent indicated by their loadings on unrotated Component 1), no single stressor, taken independently, predicted long-term psychological damage. This does not necessarily mean that these events do not have adverse effects in their own right. It simply implies that their traumatic impact is also dependent on contextual processes. Thus, contextual factors need primary attention in any consideration of what constitutes torture. A focus solely on particular methods not only detracts scientific, legal, and public attention from this important issue, but also misleads many people into thinking that it is possible to single out a particular captivity event and decide on whether or not it constitutes torture simply by imagining its impact or extrapolating from own life experiences with ostensibly similar events. Indeed, even experimental evidence, to the extent that it exists, might be misleading in this respect, as controlled experimental conditions do not wholly reflect far more complex real life situations.

The severity of acute or chronic mental suffering does not appear to be a reliable criterion in defining torture, considering that resilient survivors responded to many stressor events with relatively less distress and many did not develop PTSD, despite severe torture. Furthermore, not all stressors perceived as most distressing

(including physical torture) related to PTSD. Yet, it makes neither logical nor moral sense to disqualify such events as torture on these grounds, as many of them constitute torture by any definition. Nevertheless, potential abuse of this issue could be prevented by a definition that emphasizes the underlying intent in using potentially distressing and traumatic procedures (i.e., to cause severe mental suffering and helplessness), rather than their presumed impact.

The findings imply that "light torture" is not only a contradiction in terms but also unlikely to serve any purpose, given the remarkable resilience of political activists against such stressors. That such people can endure extreme torture with only moderate distress highlights the extent of their resilience. In such cases, CIDT is likely to evolve rapidly into physical torture, as suggested by an association between resilience and objective severity of torture in our study. The morally self-degrading nature of any form of torture aside, evidence (Başoğlu et al., 2005) on cognitive effects of torture shows that it generates intense hatred and desire for vengeance against the perpetrators, radicalizing even ordinary people with no strong political views.

In conclusion, 'cruel, inhuman, and degrading' treatments and appraisal of threat to physical and psychological well-being in a hostile and uncontrollable environment appear to be the major determinants of lasting psychological damage in detainees. Thus, considerations about what constitutes torture during captivity need to be based on an assessment of the extent to which both processes contribute to fear and helplessness in individuals, rather than on a priori assumptions about the relative impact of individual detention procedures. Furthermore, the broader definition of torture implied by these findings cannot be deemed overly inclusive

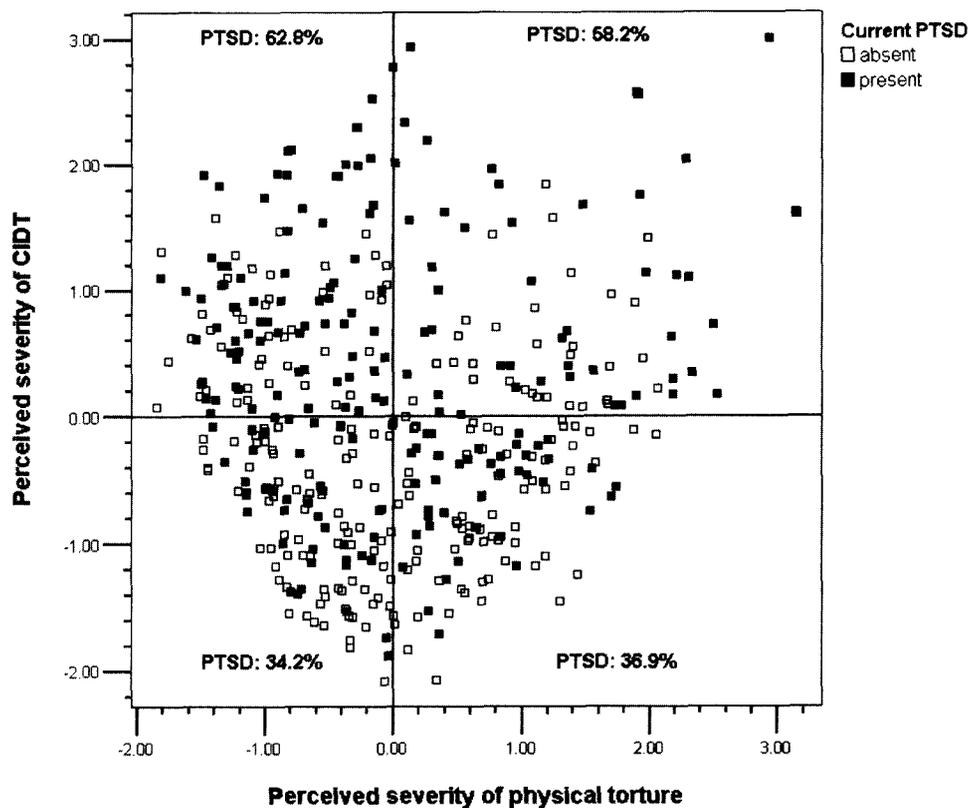


Figure 3. Risk of posttraumatic stress disorder associated with high versus low intensity physical torture and cruel, inhuman, and degrading treatment. Note: CIDT = Cruel, inhuman, and degrading treatment. Gray lines represent sample mean score (0) on the respective components, defining four quadrants reflecting severity of cruel, inhuman, and degrading treatment and physical torture. Percentages of posttraumatic stress disorder are based on cases within the respective quadrant ($n = 431$, $\chi^2 = 28.6$, $df = 3$, $p < .001$).

fact that the reality of torture is far more serious than people generally believe.

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