

# The Mental and Physical Health Effects of Torture: The Role of Identity Salience as a Pathway to Posttraumatic Growth and Healing: The Case of Syrian Refugees and IDPs

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## Abstract

**Objective:** Some studies found that torture did not predict posttraumatic stress disorder (PTSD) and is associated with more complex symptoms and that torture survivors are more resilient than other refugees. The goal is to recheck the validity of these findings. **Method:** A secondary analysis of data of 502 Syrian refugees, of whom 123 were torture survivors, we measured cumulative stressors and traumas (CST), PTSD, identity salience, post-cumulative trauma-related disorders (P-CTD), posttraumatic growth (PTG), and physical health. We conducted independent samples t-test between tortured and non-tortured refugees and hierarchical multiple regression analyses with PTSD, P-CTD, and PTG as dependent variables. We entered intersected discrimination, torture, and identity salience in the last step. **Results:** Independent samples t-test indicated that torture survivors have more neurological and musculoskeletal problems, higher psychoticism-dissociation, suicidality, and executive control deficits. There were no differences between the two groups in PTG. Further, torture survivors have higher identity salience than other non-tortured refugees. Regression analysis indicated that torture and intersected discrimination were predictors of P-CTD syndromes; torture was a stronger predictor. Torture did not predict PTSD. Identity salience was a strong predictor of PTG (Beta = .51). **Conclusions:** Torture survivors may develop PTSD because of other traumas other than torture. The results clarified some of the mechanisms that linked high identity salience and PTG in torture survivors, even though they have worse physical health, higher trauma load, and

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mental health symptom severity, compared to other refugees. Torture survivors' stronger collective identity empowered their PTG. The clinical implications of the results were discussed.

### Keywords

Torture Survivors, Refugees, Identity Salience, PTSD, Dissociation, Executive Function Deficits

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**The Study Significance Statement:** The study advances our understanding of the impact of torture and other traumatic experiences on torture survivors and the contribution of their strong group identity and its salience to posttraumatic growth. While torture survivors have higher trauma and physical and mental symptoms' load than other non-tortured refugees, they have a higher or equal level of posttraumatic growth and stronger group identity commitment that helped them with their PTG. The results guide clinicians to refocus on the identity factor in treating torture survivors.

## 1. Introduction

Torture is not a single traumatic event; it is a complex cumulative traumatic experience that may include various types and traumatic dynamics (e.g., Kira et al., 2013c; Silove, 1999). Torture has physical and psychological consequences. Physically, it can severely affect neurological and musculoskeletal systems (e.g., Moreno & Grodin, 2002; Olsen et al., 2006). Psychologically, unlike other personal and interpersonal traumas, torture is a collective (or group) identity trauma that can trigger different existential anxieties and activate the salience of the tortured person's group identity. A torture survivor has been tortured because he/she belongs to a group, and the salience of his/her group identity is an essential factor. Governments and political groups practice torture for various purposes, such as extracting information (e.g., Shue, 1978) or punishing, intimidating, silencing, or coercing social minorities or political opposition groups and their members (e.g., Summerfield, 2003). However, various definitions of torture include exacting physical and mental pain on an individual representing a group by others who have an official role or physical or temporal charge/control. Kira (2017) had recently redefined torture to include, in addition to acts by government agents, the acts of non-state actors such as rebels. According to this definition, torture is "an act of inflicting physical or and mental suffering on a person by other/s who has/have a legal capacity or physical or temporal control, in the context of explicit or implicit inter- or intragroup discord or conflict other than in the case of lawful nonpolitical sanctions)" (Kira, 2017: p. 328). Studies identified the torture experience structure to include psychological torture, sexual torture, harsh and abusive interrogations, physical torture, and extreme sensory stimulation (Hooberman et al., 2007; Kira, 2017).

Torture prevalence among refugee and asylum seekers, including Syrian refugees, is estimated above 30% (Kalt et al., 2013). Prior research on refugees and torture survivors has suggested that the mental health's most reliable predictors for those who sought refuge in other countries and did not continue to live in the countries of their torture include pre-refuge, refuge, and post-refuge stressors and traumas. Some early studies found that pre-refuge adversities accounted for most of the variance in mental health symptoms (e.g., Nicholson, 1997; Steel et al., 1999). Conversely, the more recent research determined that the post-refuge stressors, especially the ongoing intersected discrimination in the host countries, to be more salient, accounting for more variance (Chu et al., 2013; Edge & Newbold, 2013; Kim et al., 2019; Kira et al., 2010). Intersected discriminations are various micro and macro-aggressions types that target simultaneously different aspects of the person's identity, for example, race, color, religion, gender, sexual preference, national origin, poverty, or status, or belonging to opposition or minority group (e.g., Kira et al., Paper Submitted for Publication). The cumulative impact of pre-refuge, refuge, post-refuge traumas have cumulative dynamics that negatively affect torture survivors' physical and mental health (e.g., Abu Suhaiban et al., 2019; Choi et al., 2017; Kira et al., 2013c; Song et al., 2018; Steel et al., 2009). The stressors and traumas incremental accumulation process may entail, as in the case of torture survivors and refugees, different dynamics than the current focus on single traumas prescribed in Criterion "A" of PTSD and yield more complex symptoms such as complex PTSD (C-PTSD) and post cumulative trauma disorders (P-CTD) or (CTD).

C-PTSD refers to the constellation of symptoms that may result from prolonged, chronic exposure to traumatic experiences, especially in childhood, instead of PTSD, which is more typically associated with a discrete traumatic incident or set of traumatic events. C-PTSD consists of the PTSD symptom clusters (re-experiencing, avoidance and arousal) and self-organization disturbances (World Health Organization, ICD-11, 2018). While C-PTSD was proposed as a new diagnostic category, post-cumulative trauma disorders (P-CTD) or (CTD) was proposed as a comorbid cluster of different disorders that result from the cumulative effects of intersected identity and non-identity traumas (Kira et al., 2012b). P-CTD in torture survivors and refugees may include four clusters of comorbid syndromes: depression/anxiety/somatization comorbidity cluster, psychosis, and dissociation cluster, self-control and executive deficits cluster, and suicidality cluster (Kira, 2010; Kira et al., 2012b).

Life-time cumulative stressors and traumas in highly traumatized individuals and groups such as torture survivors and refugees rarely yield a single diagnosis but rather a profile of comorbid syndromes. The concept of complex PTSD was early suggested and recently codified in CD-11 may not be enough to describe the actual mental health impact of cumulative stressors in torture survivors and refugees. Post-cumulative trauma disorders (P-CTD) syndrome proposed earlier in the literature describes the cumulative impact of stressors and trauma in the lifetime in highly traumatized individuals and groups (Kira et al., 2012b).

One refugee group that suffered severely is Syrian refugees. After the beginning of the Arab Spring and the Syrian civil war, many Syrian citizens have fled to neighboring countries due to violence and difficult living conditions, such as Turkey, Jordan, Lebanon, and Iraq. In the Syrian civil war, 60% of the country's prewar population was forced out of their homes in the worse refugee crises in recorded history, and hundreds of thousands were killed (e.g., Connor & Krogsstadl, 2016). The enormous adversities encountered by Syrians presented existential threats to their personal, physical, and collective identities (e.g., national) (e.g., Al-Ibraheem et al., 2017; Kira et al., 2017; Kira et al., 2019b).

The torture experience was variably associated with PTSD and depression (e.g., Johnson & Thompson, 2008; Steel et al., 2009). However, studies by Kira et al., 2006, replicated by Hollifield et al., 2011, found that torture trauma did not predict PTSD after controlling previous traumas and ongoing intersected discriminations. Nevertheless, in further analysis, Kira, Ashby, et al. (2013c) found that torture and PTSD are associated non-linearly. That means that moderate torture stressors may predict PTSD, while severe torture stressors predict other more severe symptoms. Torture trauma is usually too distressing that tortured individuals may tend to block or overly suppress re-experiencing, which is a hallmark of PTSD (e.g., Varvin & Rosenbaum, 2003). Such extreme suppression may yield more complicated syndromes than PTSD, such as severe dissociation, psychotic symptoms, executive function deficits, and suicidality (Kira et al., 2013c; Rathke et al., 2020). A longitudinal study found that ex-prisoners of war have persistent dissociation (Zerach et al., 2014). Rathke et al. (2020) found that about 30% of treatment-seeking refugees with PTSD have secondary psychotic symptoms. Torture survivors may have PTSD due to exposure to traumas other than torture or in addition to torture.

There are replicated empirical evidence of the nonlinear relationships between PTSD, trauma, and posttraumatic growth (Helgeson et al., 2006; Kanaan et al., 2019; Kira et al., 2013c; Kleim & Ehlers, 2009). That may mean that those experiencing moderate levels of trauma and those experiencing moderate levels of PTSD have the highest level of growth, whereas those experiencing low and high levels of trauma or PTSD (e.g., torture survivors) have the lowest growth level. Conversely, a study found that torture survivors, due to their high group identity salience resulted from being tortured for their group of belonging, have more resilience, and higher social support than other non-tortured refugees (Kira et al., 2006).

One of the relatively poorly understood variables in most torture survivors and refugees' studies is the role of identity in mental health and PTG. Torture not only affects one's identity, but torture is also inflicted on the person because he/she belongs to a minority or opposition group. A group with identities that the dominant group negates is at increased risk of exposure to torture and adverse mental health conditions. Identity, a nonlinear dynamic system, is the center of personal agency, self-executive control, and executive functions (Elmore & Oyserman, 2012; Kira, 2020; Kira, 2021a). Identity can be viewed as a lens through which individuals appraise and construct the events' meaning and

then execute a response accordingly (Kira, 2019; Kira et al., 2019a; Kira et al., 2019b). Identity salience is the probability that a given identity will be invoked in social interaction (Stryker 1968). There is evidence of a strong link between strong ethnic identity and better mental health and PTG (e.g., Kira et al., 2021b; Kira & Shuwiekh, 2021; Mossakowski, 2003). Commitment to different identities in different age groups was associated with better mental health in various previous studies (e.g., for meta-analysis, see Smith & Silva, 2011). Identity and its dynamics are central to torture survivors' mental health and posttraumatic growth (PTG). There are some lingering questions about the dynamics of identity in the context of torture, intersected discrimination, and cumulative adversities. What are the variables that mediate the potential effects of identity salience on PTG? Are these dynamics invariant across genders? One study (Kira & Shuwiekh, 2021) found that increased identity salience was significantly related to higher PTG, lower P-CTD, and PTSD.

There is empirical evidence the violation of identity (interested discrimination) underlie the disproportionate impact of COVID-19 on minorities (Kira et al., 2021b). Our study aims to replicate and expand on previous results about the effects of torture on mental health and that torture survivors have higher PTG compared to other non-tortured refugees on a different sample of torture survivors. Further, the objective is to explore the mechanisms that empower torture survivors to develop higher or comparable PTG than non-tortured refugees, though they have higher trauma load and symptom severity than other refugees.

## 2. Research Hypotheses

Hypothesis 1: Torture survivors have higher health problems, especially in Neurological and Musculoskeletal systems, higher trauma load, and higher PTSD and P-CTD symptoms, compared to non-tortured, replicating previous results.

Hypothesis 2: Because Torture survivors have been tortured for their group of belonging, they have higher identity salience (group identity) than the non-tortured group who did not suffer as much for their group. They have higher or comparable posttraumatic growth regardless of their higher level of trauma load and mental and physical health symptom severity compared to other refugees who were not exposed to torture.

Hypothesis 3: Torture will not predict PTSD. It will not be associated with re-experiencing but with its complex symptoms of arousal and dissociation and will predict the complex post cumulative trauma disorder that includes the potentially more severe symptoms of psychoticism/dissociation, executive dysfunction, and suicidality. That will replicate previous results.

Hypothesis 4: The intersected discriminations in refugees and torture survivors will predict PTSD.

Hypothesis 5: Torture survivors will have higher group identity salience than other refugees. Identity Salience will predict posttraumatic growth (PTG) in torture survivors, explaining their higher or comparable PTG compared to other

less traumatized and less affected refugees who did not experience torture due to their belonging to the targeted group.

### 3. Method

**Participants and procedures:** For participants' gender, 32.3% were females. For marital status, 65.9% were married, 22.3% were single, 2.8% were divorced, 7.6% were widowers, and 1.4% were others. Age ranged from 17 to 78 ( $M = 35.76$ ,  $SD = 10.93$ ). For religion, 96% were Muslims, and 4% were Christians. For education, 12.8% had minimum reading and writing skills, 8% were at elementary level education, 15.1% had intermediate level education, 18.9% had high school level education, 34.9% had a college or university degree, and 10.4% had a post-graduate degree. Power analyses (G\*Powerprogram, version 3.1) showed that the sample size was adequate for valid results (power > .80,  $p = .05$ , effect size:  $f^2 = .15$ , see e.g., Mayr, Erdfelder, Buchner, & Faul, 2007). The current study is a secondary analysis for data collected for different other studies (Al-Ibraheem et al., 2017; Kira et al., 2017; Kira et al., 2019b). The data was collected in February through April 1996, from displaced Syrians in Syria proper ( $N = 195$ ), and March through August 1996 from Syrian refugees in Nederland ( $N = 111$ ), and from June through August 1996 from Syrian refugees in Egypt ( $N = 196$ ). The number of torture survivors in this combined data set is ( $N = 123$ ), and the total number of the combined data set is 502. Trained graduate students in clinical psychology collected the data under direct supervision from advisors and the research team. Snowbowl sampling was used to collect the data individually and through organizations that serve refugees, such as mosques and churches (for details of each data set procedure, see Al-Ibraheem et al., 2017; Kira et al., 2017; Kira et al., 2019b).

Participation was voluntary; each person took approximately 25 min to complete the entire questionnaire, not including the clinical interview that used CAPS and P-CTD. Trained graduate students in clinical psychology administered CAPS. For details of the procedures, see Kira et al., 2019b. The IRB of the sponsoring university approved the research.

Previous studies that used these two combined data sets focused on exploring the effect of the Syrian conflict on Syrian refugees in the Nederland and IDPs mental and physical health (Al-Ibraheem et al., 2017) and investigating the impact of this conflict on the Syrian refugees in Egypt threatened national identity (Kira et al., 2017). Another study that used this combined data set examined the role of appraisal and emotion regulation in mediating the impact of cumulative stressors on PTG and mental health (Kira et al., 2019b). These three studies did not target torture survivors or measure the effects of torture on mental health or PTG. Then little or no overlap between the current study focus and the previous studies that utilized these data sets.

### 4. Measures

*Syrian Oppressive Experience (SOE) Scale* (Al Ibraheem et al., 2017).  $t$  is a

32-item scale that was developed specifically for the studies on Syrian refugees. It included three main types of events that represent the Syrian refugees' overwhelming stressors and traumatic experiences: torture stressors that include different types of torture, e.g., electric shock, forced position (13-items). The second primary stressors type included sustaining injuries during the violence and devoting time to go undercover to evade being captured. The third primary type of stressors was the secondary trauma resulting from witnessing brutal killings or having one or more family members injured or died in the atrocities. The scale represents all the stressors and traumatic stressors that Syrian refugees endured. The scale has  $\alpha$  of .93.

*The Cumulative Stressors and Traumas Scale CST-S (short form)* (Kira, et al., 2008). The CST-S is based on the development-based trauma framework (DBTF) (e.g., Kira, 2001; Kira, 2019; Kira, 2021a; Kira, 2021b; Kira et al., 2018; Kira et al., 2019c; Kira et al., 2013b). The scale (34 items version) is designed to measure seven types of stressors and traumas. Additionally, it includes three items that measure chronic and significant life stressors. The seven types of stressors/traumas include collective identity traumas (e.g., discrimination due to race, color, religion, sexual preference and cultural origin, oppression, and torture). They include personal identity trauma (e.g., early childhood traumas such as child neglect and abuse). They include status identity/achievement trauma (e.g., failed business, fired, and drop out of school) (non-criterion A traumas). They also include survival trauma (e.g., combat, car accidents, and natural disasters). They include attachment trauma (e.g., abandonment by parents), secondary trauma (i.e., indirect trauma impact on others), and gender discrimination. Added to these seven stressor and trauma types are intersected discrimination, which is the cumulative score of different discrimination types, including gender discrimination. An example of items of gender discrimination is "I was put down, denied my rights, or discriminated against in the society (not by family members), by some others' negative attitudes, stereotypes or actions, or by institutions because of my gender (being a girl/woman or a boy/man)". The CST-S evaluates cumulative stressors and traumas concerning its mere occurrence, frequency, type, and negative and positive appraisals, and age of happening. However, in this short survey study, we used only frequency and occurrence questions. For each question, participants are asked to specify their encounter of a stressor's (i.e., occurrence) (yes = 1, no = 0) and the frequency of happening on a 5-point scale (0 = never; 4 = many times). If participants indicated that they had experienced the stressor, they were asked to indicate the stressor's impact on a 7-point scale (1 = extremely positive; 7 = extremely negative). The CST-S includes two overall measures for cumulative stressors and traumas' dose: occurrence and frequency. Investigators can compute subscales for each of the stressor/trauma types. The CST-S has shown adequate internal consistency ( $\alpha = .85$ ), and test-retest stability (.95 in 4 weeks), and predictive, convergent, and divergent validity in different studies (e.g., Kira et al., 2019c; Kira et al., 2020a; Kira et al., 2013b; Kira et al., 2021a; Kira et al., 2018; Kira, 2021b). The measure has

been translated and validated into different languages, including Arabic, Polish, Spanish, Turkish, Korean, Burmese, and Yoruba. In the present analysis, we used the cumulative stressors and trauma occurrence and intersected discrimination subscales. The cumulative stressors and traumas occurrence scale alpha is .86, and .70 for intersected discriminations subscale.

*Identity Salience Scale (ISS).* The ISS (Kira et al., 2011) is a 10-item scale developed in research with 880 Palestinian adolescents. The measure was used on adult Syrian refugees (e.g., Kira et al., 2019b). Identity dormancy/salience describes the person's specific identity (personal or group) status within the nested identity hierarchy, whether peripheral or central. It consists of questions like "I feel threatened personally by hate crimes committed against members of my race, religion, ethnic or cultural group or another group of my belonging or myself". Another question is, "Sometimes I wish to kill myself or somebody before my ethnic or religious group, or nation or any other group of my belonging eliminated, subjugated, or harmed". The response means how much they disagree or agree on a scale from 1 to 7 (1 = entirely disagree; 7 = absolutely agree). Higher scores mean higher collective identity salience; lower scores higher personal identity salience. Confirmatory and exploratory factor analysis confirmed two subscales: identity commitment and identity militancy. Internal consistency ( $\alpha$ ) for the measure was .80 for adolescents with  $\alpha = .74$  for the Commitment and .75 for the Militancy (ready to die for your group) subscales. Test-retest reliability after three weeks was .76. The scale's  $\alpha = .88$  for the current sample (.87 for Commitment and .82 for Militancy).

*The Clinician-Administered PTSD Scale (CAPS-2)* is a clinical interview that evaluates 17 symptoms rated on severity and frequency on a 5-point scale. The CAPS had established and robust psychometrics (Weathers et al., 2001). The instrument has four-factor subscales: avoidance, re-experiencing, arousal, and emotional numbness/dissociation. Betemps et al. (2003) found that the frequency dimension is associated with higher reliability and item discrimination than the intensity dimension. The current study used the frequency part of the scale, which most psychiatric research regularly uses. An interview format was used to administer the CAPS-2. In the current study, the measure has  $\alpha = .91$ .

*Post-Cumulative Trauma-related Disorders Measure (P-CTD).* The P-CTD (Kira et al., 2012b) is a 16-item scale was created through research on five clinical and community studies of adolescent and adults refugees, African and Arab Americans. The CTD is an index scale containing comorbidity of 13 diverse syndromes, including loss of self-control, memory deficits, dissociation, somatization, visual and auditory hallucinations, paranoid ideation, and difficulties in concentration, and self-injury, suicidal ideation, plans or attempts to commit suicide. The participant marks each question on a scale from 0 (the behavior is not applicable); to 4 (the behavior is very much present). The confirmatory and exploratory factor analyses result confirmed four factors/constructs: executive control and self-control deficits factor, suicidality and self-harm construct, psy-

choticism and dissociation factor, and depression/anxiety/somatization factor. The scale proved to have adequate internal consistency ( $\alpha = .85 - .98$ ). Test-retest consistency in a 6-week interval was .86. In the current study,  $\alpha = .86$ , and the for subscales, depression/anxiety/somatization comorbidity subscale,  $\alpha = .70$ ; for psychoticism/dissociation subscale,  $\alpha = .80$ , for executive function-control subscale  $\alpha = .74$ , and suicidality subscale  $\alpha = .77$ .

*The Post-Traumatic Growth Inventory (PTGI)*; (Tedeschi & Calhoun, 1996) evaluate perceived positive life changes (e.g., enhanced relationships, greater life appreciation) following stressful experiences. In completing the 21 items, participants answer on a range from 0 (I did not experience the change as a result of my experience) to 5 (I experienced this change to a very significant degree). The inventory includes five subscales intended to assess: personal strength, relating to others, new possibilities, spiritual change, and appreciation of life. Tedeschi and Calhoun (1996) found that the total scale has an alpha of .90 and the test-retest consistency of .71. The inventory was found to have robust psychometrics in its Arabic version (Kira et al., 2012c, 2013a), with  $\alpha = .96$ . The inventory has  $\alpha = .90$  in the current study.

*Physical Health Scale (15 items) (modified)* (Kira et al., 2001). The scale was initially created in studies on Palestinians and Iraqi refugees. The elevated score on the scale was associated with PTSD, CTD (complex PTSD), and older age (Kira et al., 2006). The lower the score, the better is the participant's health condition and vice versa. Various studies found that the scale had adequate reliability that ranged between 70 - 85. It consists of a question about self-rated health and a checklist of specific acute and chronic physical health problems, based on the taxonomy of health problems of ICD-9-CM codes for selected general medical conditions. Medical conditions include neurological and blood pressure disorders and digestive system, musculoskeletal, and endocrine illnesses. It included three questions on how health problems affected the participant's relations, memory, and ability to work. We will use the scale items to assess the differences between tortured and non-tortured individuals in different health conditions. The scale has  $\alpha = .75$  in the current study.

*Demographics*: Gender, Age, education, marital status, religion, and income data were collected. Yearly income was converted to a score from 1 - 5, with 1 = 0 - 500\$, and 5 = more than 5000\$ a year.

**Data Analysis.** We utilized IBM-SPSS 22 and Amos 22 software to analyze the data. Examination of the data showed that missing values were between .2 and 2.5%, percentages below the 5% cut-off recommended by Tabachnick and Fidell (2013). We replaced missing values by means. We performed zero-order correlations between the main variables to examine if the correlations reflect our hypotheses for the association between torture and intersected discrimination and mental health variables. We performed independent samples *t*-test between tortured ( $N = 123$ ) and non-tortured groups ( $N = 379$ ). We used Cohen's formula to calculate Cohen's *d* effect size. Cohen (1992) suggested that effect sizes of .20 are small, .50 is medium, and .80 is large. The goal was to

check our hypotheses on the differences between tortured and non-tortured groups in health, trauma load, mental health (PTSD and P-CTD), PTG, and identity salience.

To examine the effects of torture and intersected discrimination on mental health and the effects of identity salience on PTG, we conducted hierarchical multiple regression analyses. The data were assessed to ensure that the multivariate tests' assumptions were fulfilled (multicollinearity, homogeneity of covariance-variance matrices, and homogeneity of variances and linearity). We tested for collinearity, and the variance inflation factor (VIF) was less than 5.00 for all variables, suggesting no multicollinearity (e.g., Hair et al., 2017). PCTD and PTSD were the dependent variables in the analyses. Marital status, gender, age, education, and income were entered as independent variables in the first step. In the second step, we added Syrian civil war traumas. In the third step, we added intersected discrimination and torture. In another hierarchical multiple regression analysis, with PTG as a dependent variable, in the second step, we added identity salience as a predictor of PTG.

To convincingly test our hypotheses, we conducted multiple analyses (correlations, *t*-tests being, hierarchical regression). Such many analyses may increase type I errors which can affect the reliability of the findings. Because of this fact, we will only consider the significant results on the level of .01 or higher to avoid the potential increase in type 1 error (a false positive).

## 5. Results

**Descriptive results:** All torture survivors (100%) endured at least three types of traumas ( $M = 10.88$ ,  $SD = 5.18$ ); for non-tortured, 95.3% encountered at least one type of trauma ( $M = 6.75$ ,  $SD = 4.38$ ). We utilized the cut-off criteria of a score  $\geq 34$  of the PTSD scale to calculate probable PTSD; 37% of the torture sample and 26% for the non-tortured sample scored at or above the cut-off score. Further, 58% of the tortured sample scored at or above the cut point score of  $\geq 22$ , of Post-Cumulative Trauma Disorders (PCTD), compared to 36.5% for the non-tortured.

**Independent samples t-test results between tortured and non-tortured:** The tortured suffer significantly more physical health problems compared to non-tortured. Torture survivors reported that their health conditions affected their relationships, the ability to work, and memory. They have significantly more neurological and musculoskeletal problems than non-tortured, consistent with the torture experience. Further, they have more blood pressure and heart problems, respiratory system, diabetes, and endocrinology problems than the non-tortured. There is no significant difference between them and non-tortured in digestive, reproductive, or other health problems (Table 1).

Further, they tend to appraise events more negatively. They have a much higher trauma load. They have higher PTSD and higher post-cumulative trauma disorders (PCTD). For the PTSD symptoms, there are no differences between

**Table 1.** Independent samples t-test between the tortured and non-tortured in physical health conditions.

Variable	Groups	N	Mean	SD	SE	Mean difference	<i>t</i>	<i>p</i>	<i>Cohen's d effect size</i>																																																																																																																																																																
The effects of health on personal relations	Non-tortured	379	379	1.47	1.198	-.368	-2.88	.004	.29																																																																																																																																																																
	Torture Survivors	123	123	1.84	1.321					The effects of health on the ability to work	Non-tortured	379	379	1.72	1.310	-.662	-5.27	.000	.50	Torture Survivors	123	123	2.38	1.177	The effects of health on memory	Non-tortured	379	379	1.42	1.256	-.472	-3.78	.000	.38	Torture Survivors	123	123	1.89	1.186	Have health problem/s	Non-tortured	379	379	.34	.497	-.299	-5.94	.000	.59	Torture Survivors	123	123	.64	.481	Have blood pressure and heart problems	Non-tortured	379	379	.08	.266	-.130	-4.07	.000	.43	Torture Survivors	123	121	.21	.407	Have Neurological problems	Non-tortured	379	379	.07	.262	-.124	-3.96	.000	.41	Torture Survivors	123	121	.20	.400	Have Respiratory problems	Non-tortured	379	379	.06	.229	-.159	-5.24	.000	.53	Torture Survivors	123	121	.21	.432	Have Digestive system problems	Non-tortured	379	379	.08	.278	-.048	-1.40	.162	.02	Torture Survivors	123	121	.13	.340	Have reproductive system problems	Non-tortured	379	378	.06	.295	-.066	-1.95	.052	.23	Torture Survivors	123	121	.12	.331	Have Musculoskeletal system problem	Non-tortured	379	379	.14	.350	-.229	-5.68	.000	.57	Torture Survivors	123	121	.37	.485	Have Diabetes/ endocrinology problem	Non-tortured	379	379	.06	.239	-.121	-3.92	.000	.40	Torture Survivors	123	121	.18	.428	Other health problems	Non-tortured	379	379	.04	.326	-.030	-.85	.393	.09
The effects of health on the ability to work	Non-tortured	379	379	1.72	1.310	-.662	-5.27	.000	.50																																																																																																																																																																
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tortured and non-tortured in re-experiencing or avoidance, but the tortured are higher in arousal and especially in dissociation. For PCTD symptom clusters, while there are no significant differences between the two groups in the anxiety/depression/somatization comorbidity cluster, the tortured group is significantly higher in the dissociation-psychoticism cluster, suicidality cluster, and executive control cluster than other Syrian non-tortured refugees. However, there are no significant differences between tortured and non-tortured Syrian refugees in posttraumatic growth, regardless of these other severe health and mental health differences. Further, torture survivors have higher identity salience (group identity) than non-tortured (see **Table 2**).

**Correlational Results:** Torture was not associated with PTSD re-experiencing

**Table 2.** Independent samples t-test between tortured and non-tortured in mental health, identity salience, and PTG.

Variable	Groups	N	Mean	SD	SE	Mean difference	<i>t</i>	<i>p</i>	<i>Cohen's d effect size</i>
Negative Appraisal	Non-tortured	379	13.06	10.07	.52	-7.58	-6.88	.000	.68
	Torture Survivors	123	20.64	12.18	1.10				
CSTO	Non-tortured	379	6.75	4.38	.23	-4.13	-7.97	.000	.84
	Torture Survivors	123	10.88	5.18	.47				
PTG	Non-tortured	379	55.74	19.87	1.02	2.18	1.07	.287	.11
	Torture Survivors	123	53.56	19.39	1.75				
Identity Salience	Non-tortured	379	19.54	8.43	.43	-1.98	-2.16	.031	.23
	Torture Survivors	123	21.52	9.92	.90				
PTSD	Non-tortured	379	21.74	17.22	.89	-4.20	-2.37	.019	.24
	Torture Survivors	123	25.93	16.99	1.53				
PTSD Re-experiencing	Non-tortured	379	8.09	6.79	.35	-.32	-.49	.645	.05
	Torture Survivors	123	8.41	6.15	.56				
PTSD Avoidance	Non-tortured	379	4.55	4.07	.21	-.19	-.49	.641	.05
	Torture Survivors	123	4.75	3.75	.34				
PTSD Arousal	Non-tortured	379	4.63	4.75	.25	-1.83	-3.74	.000	.38
	Torture Survivors	123	6.45	4.68	.43				
PTSD Dissociation	Non-tortured	379	4.45	4.63	.24	-1.89	-3.70	.000	.40
	Torture Survivors	123	6.34	4.99	.45				
PCTD	Non-tortured	379	19.96	11.746	.61	-4.87	-3.93	.000	.41
	Torture Survivors	123	24.82	12.28	1.11				
PCTD-Depression/ Anxiety/Somatization comorbidity cluster	Non-tortured	379	5.41	2.92	.151	-.40	-.90	.369	.12
	Torture Survivors	123	5.81	4.59	.411				
PCTD-Executive control cluster	Non-tortured	379	3.58	2.83	.159	-.91	-3.17	.002	.33
	Torture Survivors	123	4.49	2.72	.25				
PCTD-Psychoticism- Dissociation cluster	Non-tortured	379	3.01	2.88	.15	-1.36	-4.41	.000	.46
	Torture Survivors	123	4.37	3.14	.29				
PCTD-Suicidality cluster	Non-tortured	379	2.12	2.83	.15	-.98	-3.28	.001	.35
	Torture Survivors	123	3.11	3.05	.28				

or avoidance but was significantly associated with PTSD dissociation (.17,  $P < .001$ ) and PTSD arousal (.16,  $P < .001$ ). It was not associated with PCTD anxiety/depression/somatization comorbidity cluster, but it was associated with PCTD-dissociation/psychoticism cluster (.19,  $P < .001$ ), PCTD-suicidality cluster (.15,  $P < .001$ ), and PCTD-executive control deficits cluster (.14,  $P < .001$ ). It was associated with PCTD (.17,  $P < .001$ ) and PTSD (.11,  $P < .05$ ). PTSD dissociation

was highly associated with PCTD-dissociation/psychoticism (.51,  $P < .001$ ), and PCTD (.58,  $P < .001$ ). PTSD and PCTD are highly correlated (.62,  $P < .001$ ). **Table 3** includes the zero-order correlation between the variables.

#### Hierarchical Multiple Regression Results:

For P-CTD as a dependent variable, in the first step, education was predictive of lower P-CTSD, while marital status (being widowed, divorced) was predictive of higher P-CTD. In the second step, the added Syrian civil war trauma was predictive of higher PCTD. In the last step, when we added torture and intersected discrimination, while education and marital status continued to be significant predictors, Syrian civil war trauma lost its significance as a predictor, while torture and intersected discrimination were significant predictors of higher P-CTSD with torture has relatively larger effect size.

For PTSD, as a dependent variable, no demographic variable was predictive of PTSD in the first step. In the second step, the added Syrian Civil war Trauma did not predict PTSD. In the third step, adding torture and intersected discrimination, only intersected discrimination (and not torture) predicted PTSD. We can conclude that while torture survivors have several traumas, such as intersected discrimination that may be associated with PTSD, their torture trauma is too severe that may be associated with the more severe complex symptoms of P-CTD. **Table 4** presents these results.

For the effects of identity salience on PTG, income was a significant predictor of PTG in the first step. In the second step, no demographic variable was predictive of PTG; identity salience predicted PTG with a relatively high effect size ( $\beta = .51$ ). **Table 5** presents these results. We can conclude that identity salience is a critical variable in predicting posttraumatic growth in torture survivors.

**Table 3.** Zero-order correlations between torture and PTSD and P-CTD symptom clusters.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Torture	1										
2. PTSD-Rexperiencing	.02	1									
3. PTSD-Avoidance	.021	.81***	1								
4. PTSD-Arousal	.16***	.56***	.55***	1							
5. PTSD-Dissociation	.17***	.62***	.66***	.65***	1						
6.PCTD-Executive control deficits	.14***	.37***	.37***	.39***	.39***	1					
7. PCTD-Psychoticism/dissociation	.19***	.36***	.34***	.53***	.51***	.49***	1				
8. PCTD-Suicidality	.15***	.29***	.28***	.53***	.43***	.38***	.57***	1			
9. PCTD-Depression/anxiety/ somatization comorbidity	.05	.40***	.32***	.250***	.30***	.48***	.33***	.20***	1		
10.PCTD	.17***	.52***	.49***	.53***	.58***	.74***	.77***	.68***	.67***	1	
11. PTSD	.11*	.90***	.88***	.80***	.85***	.44***	.50***	.44***	.38***	.62***	1

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$  (two-tailed). Note: PTSD = Posttraumatic stress disorder, PCTD = Post-cumulative trauma disorders.

**Table 4.** Hierarchical multiple regression for the effects of torture, intersected discrimination and Syrian civil war traumas on PTSD and complex.

<i>The Effects of Torture and Intersected discrimination on complex PTSD (Post-cumulative traumatic stress disorder)</i>								
	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>	<i>VIF</i>	<i>R<sup>2</sup> (change in R<sup>2</sup>)</i>	<i>F for change in R<sup>2</sup></i>
<b>Model 1: Step One</b>								
Gender	-1.669	1.141	-.065	-1.463	.144	1.046		
Age	-.004	.049	-.003	-.077	.939	1.069	.061	6.394 (<.000)
Marital Status	2.196	.603	.169	3.640	.000	1.135		
Education	-1.202	.394	-.161	-3.050	.002	1.464		
Yearly income	.227	.348	.033	.654	.514	1.342		
<b>Model 2: Step Two</b>								
Gender	-1.314	1.147	-.051	-1.145	.253	1.067		
Age	-.020	.049	-.018	-.399	.690	1.092		
Marital Status	2.215	.601	.170	3.685	.000	1.135	.009	4.942 (<.027)
Education	-1.187	.393	-.159	-3.023	.003	1.465		
Yearly income	.218	.346	.032	.630	.529	1.342		
Syrian Civil war Trauma	.053	.024	.099	2.223	.027	1.048		
<b>Model 3: Step Three</b>								
Gender	-.333	1.167	-.013	-.285	.775	1.128		
Age	-.020	.049	-.018	-.404	.686	1.102		
Marital Status	2.064	.598	.159	3.450	.001	1.149		
Education	-1.162	.388	-.155	-2.990	.003	1.465	.024	6.528 (<.002)
Yearly income	.523	.353	.076	1.482	.139	1.424		
Syrian Civil war Trauma	.029	.028	.054	1.033	.302	1.461		
Intersected discriminations	1.349	.645	.097	2.093	.037	1.178		
Torture	3.525	1.502	.127	2.346	.019	1.583		
<i>The Effects of Torture and Intersected discrimination on PTSD</i>								
	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>	<i>VIF</i>	<i>R<sup>2</sup> (change in R<sup>2</sup>)</i>	<i>F for change in R<sup>2</sup></i>
<b>Model 1: Step One</b>								
Gender	-1.535	1.676	-.042	-.916	.360	1.046		
Age	.063	.072	.040	.880	.379	1.069	.019	1.938 (<.087)
Marital Status	1.695	.887	.091	1.911	.057	1.135		
Education	-.915	.579	-.085	-1.580	.115	1.464		
Yearly income	.215	.511	.022	.421	.674	1.342		
<b>Model 2: Step Two</b>								
Gender	-1.366	1.693	-.037	-.807	.420	1.067	.001	.516 (<.473)
Age	.056	.073	.036	.766	.444	1.092		

**Continued**

Marital Status	1.703	.887	.091	1.920	.055	1.135		
Education	-.908	.580	-.084	-1.567	.118	1.465		
Yearly income	.211	.511	.021	.412	.680	1.342		
Syrian Civil war Trauma	.025	.035	.033	.718	.473	1.048		
<b>Model 3: Step Three</b>								
Gender	.077	1.715	.002	.045	.964	1.128		
Age	.068	.072	.044	.946	.345	1.102		
Marital Status	1.338	.880	.071	1.521	.129	1.149		
Education	-.887	.571	-.082	-1.553	.121	1.465	.033	8.516 (<.000)
Yearly income	.646	.519	.065	1.246	.213	1.424		
Syrian Civil war Trauma	.025	.041	.032	.610	.542	1.461		
Intersected discriminations	3.458	.948	.174	3.649	.000	1.178		
Torture	2.162	2.209	.054	.979	.328	1.583		

**Table 5.** Hierarchical multiple regression for the effects of identity salience on posttraumatic growth.

<i>The Effects of Identity Salience on PTG</i>								
	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>	<i>VIF</i>	<i>R<sup>2</sup> (change in R<sup>2</sup>)</i>	<i>F for change in R<sup>2</sup></i>
<b>Model 1: Step One</b>								
Gender	.386	1.964	.009	.197	.844	1.049		
Age	-.057	.085	-.031	-.671	.502	1.076	.023	3.25 (<.007)
Marital Status	.648	1.033	.030	.627	.531	1.147		
Education	.107	.680	.009	.158	.875	1.473		
Yearly income	-2.009	.595	-.176	-3.379	.001	1.349		
<b>Model 2: Step Two</b>								
Gender	.735	1.725	.017	.426	.670	1.050		
Age	-.088	.074	-.048	-1.187	.236	1.077		
Marital Status	.485	.907	.023	.535	.593	1.147	.222	143.92 (<.000)
Education	1.101	.603	.088	1.826	.068	1.501		
Yearly income	-.504	.537	-.044	-.938	.349	1.427		
Identity Salience	1.137	.095	.508	11.997	.000	1.162		

## 6. Conclusion and Discussion

The current study is significant, as it did not only replicate previous studies' results on the effects of torture on PTSD and other mental health conditions and the relatively higher or comparable rates of PTG, compared to non-tortured but also on identifying some of the dynamics and mechanisms behind these relationships. The study confirmed the study hypotheses and replicated and expanded

on previous studies' results. Syrian torture survivors were exposed to more traumatic experiences than other Syrian refugees who were not tortured. They suffered more symptoms of PTSD and P-CTD compared to other non-tortured refugees. They endured more physical health problems, primarily neurological and musculoskeletal, consistent with their torture experience. Neurological problems may be associated with memory and executive function deficits. They were higher in arousal, dissociation, psychoticism-dissociation, executive dyscontrol, and suicidality symptoms. However, regardless, as hypothesized, there were no significant differences between them and non-tortured in their post-traumatic growth, and they had higher identity salience (group identity) than non-tortured, which seems to be a protective factor for them as will be discussed further. While torture trauma was not associated with re-experiencing or avoidance symptoms, it was significantly associated with PTSD-dissociation, PTSD arousal, P-CTD psychoticism-dissociation, P-CTD poor executive control, and suicidality. In the hierarchical multiple regressions, torture was the strong predictor of P-CTD, while it did not predict PTSD, supporting previous findings on the effects of torture (Hollifield et al., 2011, Kira et al., 2006). Intersected discrimination predicted PTSD in torture survivors and refugees. To conclude, torture trauma may be too severe as it was associated with the more severe complex symptoms of P-CTD, rather than only PTSD symptoms. PTSD in torture survivors may be more related to other stressors and trauma experiences (e.g., intersected discrimination, cumulative stressors, and traumas dynamics).

A previous study on Iraqi refugees found that torture survivors are higher in PTG than other non-tortured refugees (Kira et al., 2006). Current results did not find higher PTG in Syrian torture survivors compared to the non-tortured but found comparable rates, though they have more trauma and symptom overloads than their counterparts. PTG in tortured refugees is enhanced by higher group (collective) identity salience, as the current study indicated, which is the mechanism behind their higher or comparable PTG.

Identity salience predicted PTG with a relatively high effect ( $\beta = .51$ ). Identity salience was significantly higher in torture survivors than non-tortured refugees, making sense for those who had sacrificed themselves for their group identity and or for its cause. The current study might help elucidate the detrimental effect of the unattainability of positive group identity for minority groups who suffer discrimination, marginalization, and the belittling of their group identity, and those victims/survivors of sex trafficking, Satanic cults, and other criminal enterprises. A related question is whether, for the positive effect of group identity, the identity must precede or be enhanced by the torture, or whether it can be efficacious or feasible if developed in a post-refuge context after the torture or through intervention and prevention strategies.

The current study has significant conceptual and clinical implications. Conceptually, psychiatric nosologies provided various diagnostic categories that can cluster into profiles and syndromes following varieties of severe adversities and contingencies. Clinicians and clinical scientists instead adopt the primacy of pro-

files of syndromes that follow severe traumas over specific PTSD or C-PTSD diagnostic categories to correctly identify and effectively treat their mental and cognitive negative impact on the individuals and groups. Post-cumulative trauma dynamics and reactions may be far greater than a single diagnostic category, especially for torture survivors and refugees. Clinical science may better be served by focusing more on the pathways of such syndromes and profiles and the varieties of their trajectories over time. Network analysis of DSM structure indicated that psychopathology could be more adequately captured by sophisticated network models than current classification systems (Boschloo et al., 2015). However, focusing on empirically identified syndromes and trajectories is not to replace diagnostic categories but rather to expand the frontiers and precision of clinical science into new directions that are more consistent with clinical phenomena and their lived realities.

The study results have important clinical implications for intervention and prevention, working with torture survivors. The importance of the identity variable, especially when dealing with torture survivors, seems a critical variable that is neglected in most therapeutic approaches with refugees and torture survivors. The identity variable is pre-cognitive and related to the executive self.

Another critical variable is intersected discrimination that torture survivors and refugees encounter in their native and host countries. The transnational intersectionality framework was proposed to extend the intersectionality perspective, which may help better understand the complexities of power and oppression across national contexts and their influence on torture survivors' lives (Gangamma & Shipman, 2018). Narrative identity therapy that may help to empower/re-empower transform, re-author, and reauthorize identity with narrative techniques may be one of the keys for healing for torture survivors and enhancing PTG (Kira & Tummala-Narra, 2015; Kira et al., 2015; Kira et al., 2012a; Kira et al., 2014; Kira, 2002; McAdams & Janis, 2004; Rousseau et al., 2005).

The effects of torture on dissociation and executive control function are alarming and need a particular focus on treatment. A recent study confirmed the direct effects of torture on higher working memory and inhibition deficits, in addition to its indirect effects on them via mental health symptoms (Kira et al., 2020b; Kira et al., paper submitted for publication). There is a pressing need for cognitive training to enhance their executive functions, critical to their mental health treatment. Several studies have reported cognitive training efficacy in improving cognitive control (e.g., Han, Chapman, & Krawczyk, 2018). Such cognitive interventions should be part of the standard treatment protocol for treating torture survivors and may be essential for PTSD and depression treatment protocols. Innovations and experimentation on cognitive training with torture survivors and refugees are desperately needed. Additionally treatment should include secondary torture survivors (e.g., family members) (e.g., Kira, 2004).

## Limitations and Future Direction

The current study has several limitations. One of the limitations is that the study was conducted on a convenient sample with narrow and biased representation. Another limitation is that the measures used are based on self-reports, which are subject to over or under-reporting due to social desirability. Another weakness is that the study utilized a cross-sectional design.

However, the current study provided significant replication and extension of previous findings on the nature of torture trauma and its effects and the need for novel rehabilitation and treatment protocols for torture survivors, including unique applications and some key active treatment ingredients, such as identity-focused interventions and cognitive training.

## Compliance with Ethical Standards

The study is a secondary analysis. The original data was collected upon approval of the IRB of the Fayoum University, EGYPT, and the studies were performed in accordance with the ethical standards as set forth in the 1964 Declaration of Helsinki and its later amendments.

## Informed Consent

The study is a secondary analysis. Informed consent was obtained in the original studies

## Conflicts of Interest

The authors declare they have no conflict of interest.

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