Short communication

Posttraumatic growth among spouses of combat veterans: Adaptive or maladaptive for adjustment?

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ABSTRACT

We examined the relationship between posttraumatic growth (PTG) and distress in spouses of trauma survivors. A sample of spouses of combat veterans of the 1973 Yom Kippur War were assessed using questionnaires pertaining to PTG, depression, anxiety, and posttraumatic stress, in 2004 and 2011. Applying cross-lagged modeling strategy, higher PTG levels predicted higher depression and anxiety levels above and beyond initial distress. Thus, psychological growth in spouses of survivors appears to signify subsequent distress.

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1. Introduction

The negative psychological effects of trauma exposure on direct survivors have been repeatedly documented, particularly in symptoms of posttraumatic stress (Kessler et al.,1995) and high prevalence of depression in the long-term (Dekel et al.,2014). Yet, survivors also report positive changes in their lives resulting from the emotional struggle with the trauma (Tedeschi and Calhoun, 2004). This positive perspective on trauma has been receiving growing scientific attention over the past years. A commonly used term coined to describe these salutogenic effects is "posttraumatic growth" (PTG: Tedeschi and Calhoun, 2004). PTG pertains to the perception of positive changes with respect to new life priorities, closer relations to others, increased appreciation of life, greater sense of personal strength, and spiritual change (Tedeschi and Calhoun, 2004). PTG has been described in more than 200 studies as evident in survivor reports following a wide range of traumatic events (see Cho and Park, 2013, for a review).

It has been suggested that the psychological implications of trauma are not limited to trauma survivors, but may also be experienced by individuals who have intimate ties with the traumatized, as described by the term secondary traumatization (Figley, 1986). Studies have repeatedly documented that increased psychiatric symptoms in the spouses of trauma survivors may be evident, as well as complaints of depression and anxiety (Klarić et al., 2012; Solomon et al., 1992). Only recently has the psychological growth of spouses been described (Klarić et al., 2012). This type of growth pertains to positive changes resulting from indirect exposure to the partner's trauma, and can be coined the term secondary PTG. For example, caregivers of patients with advanced cancer reported PTG at six months following their partner's diagnosis (Moore et al., 2011). Likewise, wives of former prisoners of war reported PTG as far as 30 years after the war (Dekel, 2007).

An issue of important clinical relevance is the relationship between secondary traumatization and secondary PTG. The underlying and pertinent factors promoting mental health in secondary traumatized individuals are relatively unknown. To the best of our knowledge, no study has examined the role of secondary PTG in relation to distress. Previous studies exclusively report on samples of direct trauma survivors, and their findings are inconsistent. Positive, negative, and null findings have been reported on the relationship between PTG and mental health (e.g., see Helgeson et al., 2006, for a review). Therefore, the current investigation intends to address this research gap.

It could be speculated that the PTG of the spouses would promote adjustment and ameliorate their distress. This is consistent with with the view of PTG as a constructive coping strategy and an adaptive trauma response. While traumatic events pose a threat to the person's world assumptions (Janoff-Bulman, 1992), the process

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of growth entails the rebuilding of positive world assumptions (Janoff-Bulman, 2004), offering a construal of meaning and benefit attribution (Davis et al., 1998). Primary PTG was previously associated with reduced stress, as evident in decreased mental fatigue in residents three months following the Great East Japan earthquake (Nakagawa et al., 2014). PTG was also found to predict better adjustment five years after diagnosis in breast cancer patients (Carver and Antoni, 2004). In a similar vein, secondary PTG may promote alleviation of secondary distress.

Alternatively, PTG of the spouses may hinder their adjustment. In accord with the Janus-Face model (Maercker and Zoellner, 2004), PTG has a constructive but also a self-deceptive side. PTG may serve an illusory self-enhancing function to counterbalance distress (Zoellner et al., 2011) and is likely to be associated with avoidance and denial strategies (Taylor, 1983). The self-enhancing function may be adaptive in the short-run (Bonanno et al., 2005) but in the long-term has negative effects on adjustment (Maercker and Zoellner, 2004). Previous studies of direct trauma survivors have shown that higher levels of PTG are linked with higher levels of distress, incorporating symptoms of depression (e.g., Kleim and Ehlers, 2009) symptoms of anxiety, and posttraumatic stress in the long-term following the trauma (e.g., Dekel et al., 2012). Hence, it could be expected that secondary PTG may predict subsequent secondary distress.

To address the relationship between presumed secondary psychological growth and secondary distress in this longitudinal study, we collected data from spouses of veterans of the Yom Kippur war and examined the associations between their reports of PTG and symptoms of depression and anxiety.

2. Method

2.1. Participants and procedure

This study is part of a longitudinal study of Israeli combat veterans of the 1973 Yom Kippur War and their spouses (Solomon et al., 2014). The group of veterans was comprised of individuals who were exposed to battlefield stressors, including encounters with injured people and dead bodies, active fighting, and exposure to life-threatening events. 15.6% and 21.3% of the veterans met PTSD DSM-IV symptoms criteria in 2003 and 2008, respectively. Here we analyzed data from 171 female spouses of these veterans, among whom 149 participated in the assessments conducted 30 (Time 1, 2004) and 37 (Time 2, 2011) years after the war, resulting in a 13% attrition rate. The sample did not differ from the initial one with respect to distress and demographic variables. Spouses were between 36 to 79 years old ($M=58$, $SD=5.87$), married/cohabitated between three to 53 years ($M=27.82$, $SD=6.54$), and had 15 years of education ($SD=2.20$). Following approval from Tel Aviv University Review Board, participants (veterans and their spouses) were identified using updated Israel Defense Force (IDF) files. Participants completed the research questionnaires either in their homes or in a location of their choice. All participants read and signed an informed consent agreement.

2.2. Measures

PTG was measured by the commonly used self-report Posttraumatic Growth Inventory (PTGI; Tedeschi and Calhoun, 1996), listing 21 items on a 4-point scale, comprising of five subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life (α was .94 for the total score and between 0.89 and 0.96 for the subscales). Participants were asked to report the extent of positive change that occurred in their life following the Yom Kippur war. They were specifically instructed to

report on the changes in their life as a result of living with a combat veteran following the war.

Depression and anxiety were assessed by the widely used self-report checklist-90 (SCL-90, Derogatis, 1977) targeting symptoms and symptom clusters on a 5-point scale. Participants were asked to report how frequently they experienced each symptom in the past two weeks. Based on SCL norms from psychiatric outpatients (Derogatis, 1977) mean scores for depression and anxiety equal to or above 0.73 were considered as symptom endorsement (α for depression and anxiety was 0.85 and 0.91, respectively).

Posttraumatic stress symptoms were measured by the Postraumatic stress disorder (PTSD) inventory (Solomon et al., 2014), targeting 17 symptoms in accord with DSM-IV-TR (APA, 2000). Participants were asked to rate how often they suffered from each symptom in the previous month on a 4-point scale. They were also instructed to report about their reactions to their partner's experience of combat (e.g., "I have nightmares about my partner's combat experience/ captivity", "I have recurrent thoughts about my husband's captivity") (α was 0.91 for the total score).

2.3. Statistical analysis

The magnitude of associations between PTG, depression, anxiety, and posttraumatic stress symptoms (i.e., related to secondary traumatization) at T1 and T2 were examined via a series of Pearson correlations. Next, we examined the bidirectional association between depression and PTG over the two time-points.

To this end, we employed an autoregressive cross-lagged modeling strategy (ARCL; Anderson, 1960). This form of analysis provides an indicator of temporal precedence in the absence of an experimental design (Anderson, 1960). It allows for simultaneous assessment of whether earlier measures of PTG predict later measures of depression, and whether earlier measures of depression predict later measures of PTG. Because PTG consists of five clusters, we used latent variables in a structural equation model (SEM) environment to represent the PTG underlying construct. We estimated the model's fit by using the comparative fit index (CFI), the incremental fit index (IFI) and the root mean square error of approximation (RMSEA). A model is judged as fitting well when CFI, IFI and 1-RMSEA are larger than .95 (Bollen and Curran, 2006). The second analysis was conducted adding the measure of anxiety to the model.

3. Results

Table 1 presents the means, standard deviations, and inter-correlations between our main study measures. Significant relations were found between PTG, depression, and anxiety both cross-sectionally and between T1 and T2. The more PTG spouses

Table 1
Means, standard deviations, and inter-correlations between main study measures.

Measure	1	2	3	4	5	6
1. PTG, T1	1	0.66[**]	0.43[**]	0.44[**]	0.48[**]	0.35[**]
2. PTG, T2		1	0.37[**]	0.37[**]	0.43[**]	0.32[**]
3. Depression, T1			1	0.55[**]	0.85[**]	0.52[**]
4. Depression, T2				1	0.59[**]	0.72[**]
5. Anxiety, T1					1	0.51[**]
6. Anxiety, T2						1
M	2.25	2.24	0.76	0.70	0.64	1.02
(SD)	(0.85)	(0.88)	(0.73)	(0.54)	(0.69)	(0.74)

Note. PTG=posttraumatic growth, GSI=global severity Index. T1 and T2=assessments in 2004 and 2011.
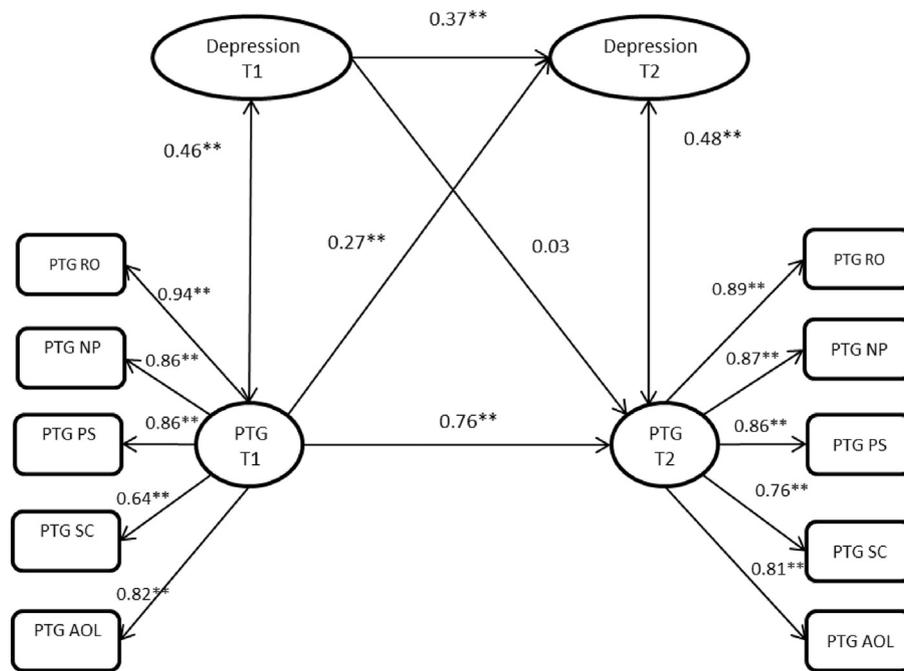
[**] $p < 0.01$.

Fig. 1. Autoregressive cross-lagged model assessing bidirectional relationships between spouses' posttraumatic growth and depression symptoms across two time points, 2004 and 2011.

endorsed, the higher their depression and anxiety levels were. Moreover, the data revealed a strong and positive association between spouse's depression and anxiety levels and the severity of their PTSD symptoms (related to secondary traumatization) at T1 and T2 [$r=0.69$ ($p < 0.001$) and $r=0.70$ ($p < 0.001$) for depression; $r=0.68$ ($p < 0.001$) and $r=0.70$ ($p < 0.001$) for anxiety].

Fig. 1 presents the bi-directional associations between PTG and depression over the time point (i.e., 2004 and 2010). We found that the ARCL model fits the data fairly well, $\chi^2(51)=114.72$, $p < 0.05$, CFI=0.95, IFI=0.95, NFI=0.91, 1-RMSEA=0.95. The analysis revealed the stability of PTG and depression over time; spouses with high levels of PTG and depression at T1 tended to endorse high levels of PTG and depression at T2 ($\beta= 0.76$, $p < 0.01$ for PTG and $\beta= 0.37$, $p < 0.01$ for depression). More importantly, the analyses revealed that high levels of PTG at T1 predicted high levels of depression ($\beta=0.27$, $p < 0.01$) at T2, above and beyond the depression stability, but not vise versa.

The results remained in the same direction when anxiety was added to the model. We found that the model fits the data well, $\chi^2(51)=7.27$, $p < 0.01$, CFI=0.876, IFI=0.91, NFI=0. 852, 1-RMSEA=0.91. The analysis revealed the stability of PTG, anxiety and depression over time (PTG: $\beta=0.68$, $p < 0.01$; depression: $\beta=0.44$, $p < 0.05$; anxiety: $\beta=0.46$, $p < 0.01$). Moreover, high levels of PTG at T1 predicted high depression ($\beta=0.26$, $p < 0.01$) and anxiety levels ($\beta=0.17$, $p=0.5$) at T2, above and beyond the stability of PTG.

4. Discussion

This study is the first to examine the relationship between PTG and distress among spouses of combat veterans in the long-term phase after the war. The results show that reports of PTG can co-exist with symptoms of anxiety and depression. Moreover, the data reveals that the PTG of the spouses is indicative of later depression and anxiety above and beyond the contribution of their initial distress. Hence, contrary to what might be expected, growth does not predict positive mental health.

Our finding that individuals who report PTG also experience distress accords with a body of research on direct trauma survivors (see Cho and Park, 2013, for a review). Interestingly, the distress has been regarded as the engine for psychological growth to ensure. Distress may signify that the individual's assumptive world is challenged and that she/he is mentally working through the implication of the stressor (Helgeson et al., 2006); and this cognitive processing facilitates the development of growth. As previously shown, PTG in direct survivors is rather triggered by posttraumatic stress (Dekel et al., 2012) and shares with it common predictors (Dekel et al., 2011).

The finding that PTG predicts subsequent distress rather than amelioration of symptoms may suggest that perceived growth, as we measure here, might not reflect veridical growth but illusory notions of self-improvement. McFarland and Alvaro (2000) speculate that perceived growth relates to a cognitive-bias whereby individuals derogate their pre-trauma functioning and subsequently report post-trauma growth. Thus, PTG may be regarded as means to reduce cognitive dissonance, which is likely to be intensified when distress remains enduring in the long-term. Yet, PTG in direct survivors is also linked with intrusive ruminations (e.g., Taku et al., 2009) and somatization (Dekel et al., 2014), suggesting that PTG is partly effective. The individual may declare PTG but at the same time struggle with obtaining a positive outlook of the traumatic experience. Consequently, as we show here, PTG may predict long-term mental health problems.

It may also be that timing effects the relationship between growth, distress, and the development of deceptive rather than veridical growth. A type of constructive growth may evolve in the first years following traumatic exposure and a deceptive form may ensue in the long-term. Contrary to our findings, it has been documented that PTG does act to promote post-event adjustment and alleviate distress. PTG in assault survivors predicted less distress twelve months following exposure (Frazier et al., 2001). It is possible that there are "windows of opportunities" in the short-term for PTG to promote adjustment, yet attempts to achieve adaptive PTG are likely to be unsuccessful when the negative psychological implications of exposure are enduring in the long-term.

Several study limitations should be noted: the inevitable attrition rate of longitudinal studies, the use of prospective self-report measures, and the time elapsed between the trauma and the first assessment. Although we used a common measure to examine symptoms of depression and anxiety, whether a participant had clinically diagnosed depression or anxiety was not asked. Also, though the PTGI is widely used, this self-report measure narrows participant response, presenting a possible bias in reporting. Since we did not assess PTG baseline levels before (indirect) exposure to the trauma, as is usually the case in studies of primary PTG, there may be other factors contributing to spouses' PTG, such as their own pre-trauma experiences. Ideally we would obtain data prior to the trauma to validate later reports of PTG, and assess PTG from the very early phase after the trauma by incorporating narrative accounts and various mental health outcomes. While this longitudinal study offers predictions of the relationship between PTG and distress, the findings do not allow clear-cut inferences regarding causational relations.

In conclusion, this study documents that perceived psychological growth is indicative of subsequent deteriorated mental health with respect to depression and anxiety in a sample of female spouses of combat veterans in the long-term following the war. Hence, reports of presumed secondary growth in the long-term may be an important tool to assess and predict sustained effects of secondary traumatization. It may be beneficial to identify patients deploying growth and similar self-enhancement coping strategies that may fail to improve in the course of treatment. Our findings clearly underscore the complexity of the relationship between positive and negative responses to trauma and warrant more research to elucidate the association between psychological growth and adjustment.

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