Journal of Traumatic Stress, Vol. 22, No. 4, August 2009, pp. 282–286 (© 2009)

CE ARTICLE

Examining the Relationship Between Resilience and Posttraumatic Growth

Stephen Z. Levine
Renata Adler Research Center for Child Welfare and Protection, Bob Shapell School of Social Work, Tel-Aviv University, Tel-Aviv, and Department of Criminology, Bar Ilan University, Bar Ilan, Israel

Avital Laufer
Renata Adler Research Center for Child Welfare and Protection, Bob Shapell School of Social Work, Tel-Aviv University, Tel-Aviv, and School of Behavioral Sciences, Netanya Academic College, Netanya, Israel

Einat Stein
Renata Adler Research Center for Child Welfare and Protection, Bob Shapell School of Social Work, Tel-Aviv University, Tel-Aviv, and Department of Psychology, Bar Ilan University, Bar Ilan, Israel

Yaira Hamama-Raz
Renata Adler Research Center for Child Welfare and Protection, Bob Shapell School of Social Work, Tel-Aviv University, Tel-Aviv, and Ariel University Center, Ariel, Israel

Zahava Solomon
Renata Adler Research Center for Child Welfare and Protection, Bob Shapell School of Social Work, Tel-Aviv University, Tel-Aviv, Israel

To extend the literature the present study aims to examine the interrelationships between resilience (defined by a lack of posttraumatic stress disorder following trauma) and posttraumatic growth. Two studies were conducted of Israeli: (a) adolescents exposed to terror ($N = 2908$), and (b) citizens and army personnel following the second Lebanon War ($N = 588$). Across studies the results showed that high levels of resilience were associated with the lowest posttraumatic growth scores. The results imply that although growth and resilience are both salutogenic constructs they are inversely related. The theoretical and clinical implications of these findings are discussed.

Typically, trauma research examines pathogenic outcomes, particularly posttraumatic stress disorder (PTSD; Breslau et al., 1998). Posttraumatic stress disorder, however, is not experienced by most trauma survivors. For instance, in the National Comorbidity Survey trauma exposure rates exceeded 50%, yet lifetime PTSD was estimated at 7.8% (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). This finding has been replicated repeatedly (Ozer, Best, Lipsey, & Weiss, 2003). This consistent body of research suggests that most people exposed to trauma retain a stable equilibrium without reactive psychopathology (Bonanno, 2004; Bonanno, Galea, Bucciarelli, & Vlahov, 2006). Accordingly, the ability to sustain trauma without reporting PTSD is viewed by several researchers as resilience (Bonanno, 2004; Lepore & Revenson, 2006).

Like resilience, posttraumatic growth is a salutogenic construct. Growth refers to the development of a positive outlook following trauma (Tedeschi & Calhoun, 1996, 2004). Positive changes may include relating to others, new possibilities, personal strength, spiritual change, and appreciation for life (Tedeschi & Calhoun, 2004). Posttraumatic growth has been reported to follow various traumatic events, including war and terror (Helgeson, Reynolds, & Tomich, 2006). Theoretically, however, posttraumatic growth and resilience are often confused in the literature (Tedeschi, Calhoun, & Cann, 2007). For instance, it is debated as to whether or not

Correspondence concerning this article should be addressed to: Stephen Z. Levine, Department of Criminology, Bar-Ilan University, Ramat Gan 52900, Israel. E-mail: levins@biu.ac.il.

 DOI: 10.1002/jts.20409

posttraumatic growth is a form of resilience, and argued whether or not growth is superior to resilience (cf. Johnson et al., 2007; Lepore & Revenson, 2006; Tedeschi et al., 2007; Westphal & Bonanno, 2007). Therefore, the relationship between posttraumatic growth and resilience is unclear.

In sum, ambiguity characterizes the literature discussing the relationship between resilience and posttraumatic growth. Therefore, in this article we examine the association between resilience, defined as resistance to PTSD following adversity (Bonanno, 2004; Bonanno et al., 2006) and posttraumatic growth (Tedeschi & Calhoun, 2004). The relationship is examined among adolescents directly and indirectly exposed to terror, and citizens and combatants exposed to wartime trauma.

STUDY 1

Method

Participants and procedure. Data ($N = 2908$) were drawn from two samples of Israeli adolescents of whom 39% ($n = 1133$) were female. The first sample included adolescents in grades 7–9 (modal age 13) from 11 Israeli schools, with varied levels of terror exposure (see Laufer & Solomon, 2006). The second sample consisted of adolescents aged 16 diversely distributed in Israel (Hamama-Raz, Solomon, Cohen, & Laufer, 2008). Both samples used the same methods, but the first study was conducted during a period of greater terror (2002).

Measures. Posttraumatic stress symptom severity was assessed with the 20-item Child Post-Traumatic Stress Reaction Index (CPTS-RI; Frederick & Pynoos, 1988). Exposure to terror was examined with the 24-item Exposure Questionnaire (Lavi & Solomon, 2005; Solomon & Lavi, 2005). The back-translated Hebrew version (Laufer & Solomon, 2006) of the Posttraumatic Growth Inventory (PTGI; Tedeschi, & Calhoun, 1996) has adequate psychometric qualities and was used to measure posttraumatic growth.

Results and Discussion

The trend in Figure 1 illustrated that posttraumatic growth and resilience were inversely related. The ANOVAs showed a significant linear trend of less posttraumatic growth scores with more resilience (i.e., low PTSD scores), $F(4, 2903) = 138.43$, $p < .001$. This trend was reinforced by generally significant post hoc tests, adjusted for multiple testing. The exceptions to this trend of significance were between moderate and severe PTSD levels. This trend was replicated across the growth subscales and subanalyses of those with direct or indirect exposure. Effect sizes were high because they exceeded $\eta^2 = 0.14$.

Generally, the results support the hypothesis that resilience (a lack of PTSD) is associated with the least posttraumatic growth (Tedeschi & Calhoun, 2004). This pattern held for direct and indirect traumas and the posttraumatic growth subscales. It is, however, unclear whether this trend extends to other severe forms of exposure or adult samples. This is relevant because children and adults may differ in the abstract thinking abilities necessary for posttraumatic growth (Helgeson et al., 2006). Accordingly, a second study was conducted to examine the relationship between resilience and growth among adults (i.e., civilians and military personnel exposed to the second Lebanon war).

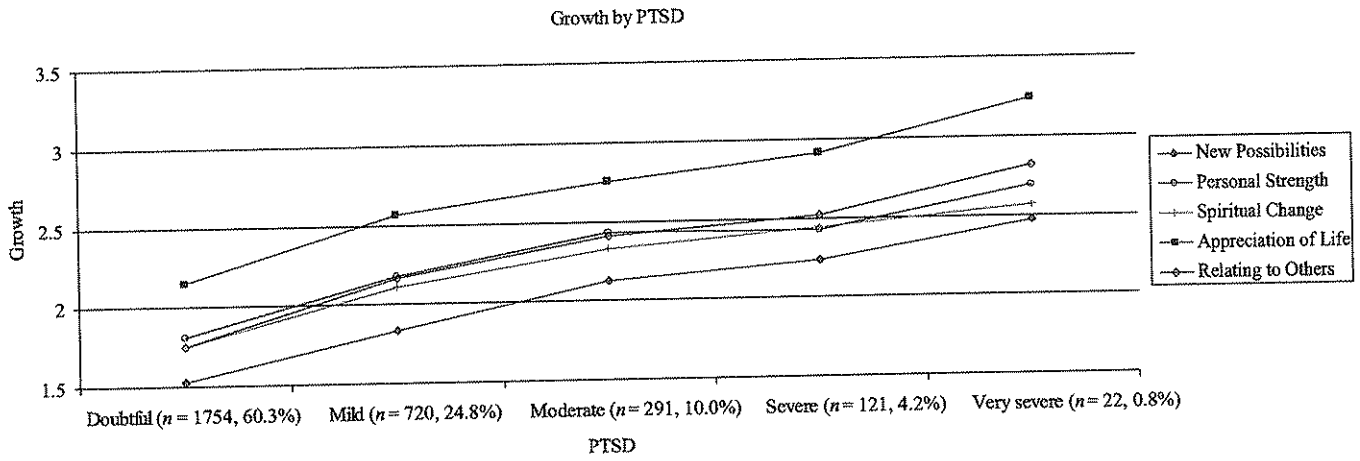

Figure 1. Posttraumatic growth by posttraumatic stress disorder (PTSD) levels in adolescents.

STUDY 2

Method

Participants and procedure. Data were gathered from Israeli civilians and military personal approximately one year after the second Lebanon War in 2006 ($N = 588$). All civilians ($n = 197$, 63.5%) were residents of northern Israel, which was subjected to intense direct missile attacks during the war. Of the 277 military personnel 65.3% were active front-line combatants during the war. The sample's average age was 26 years old ($SD = 4$), and 63.4% were male.

Measures. Posttraumatic stress disorder was measured using the *DSM*-based PTSD Inventory (Solomon & Dekel, 2007; Solomon, Neria, Ohry, Waysman, & Ginzburg, 1994). This measure permitted the derivation of three groups (see Solomon & Dekel, 2007), namely participants with PTSD (with minimally one intrusive symptom, three avoidant symptoms, and two hyperarousal symptoms), subclinical symptom severity, or no symptoms (i.e., resilience). Exposure was measured based on participants' reports of their role (i.e., civilian or soldier) and location during the war (in the North or not). In combination the measures produced a grouping scheme of four exposure levels (combatant, noncombatant soldier, civilian in the North, civilian not in the North) by three PTSD symptom levels (resilience, presence of PTSD symptoms, and *DSM* PTSD). The Hebrew version of the PTGI was used to measure growth (Tedeschi & Calhoun, 1996).

Results and Discussion

Figure 2 indicated that the least posttraumatic growth was associated with the most resilience (i.e., no PTSD symptoms). The ANOVA indicated that significantly less posttraumatic growth was associated with more resilience, $F(11, 575) = 12.68$, $p <= .001$. A majority of pairwise comparisons adjusted for multiple testing were statistically significant, particularly regarding resilience (note that significant differences corresponded to approximately a 0.8 mean difference in Figure 1 on aggregate). Aggregate and separate exposure group (soldiers and civilians) analyses were conducted for each growth scale that generally replicated this trend of statistical significance. Effect sizes were high because they

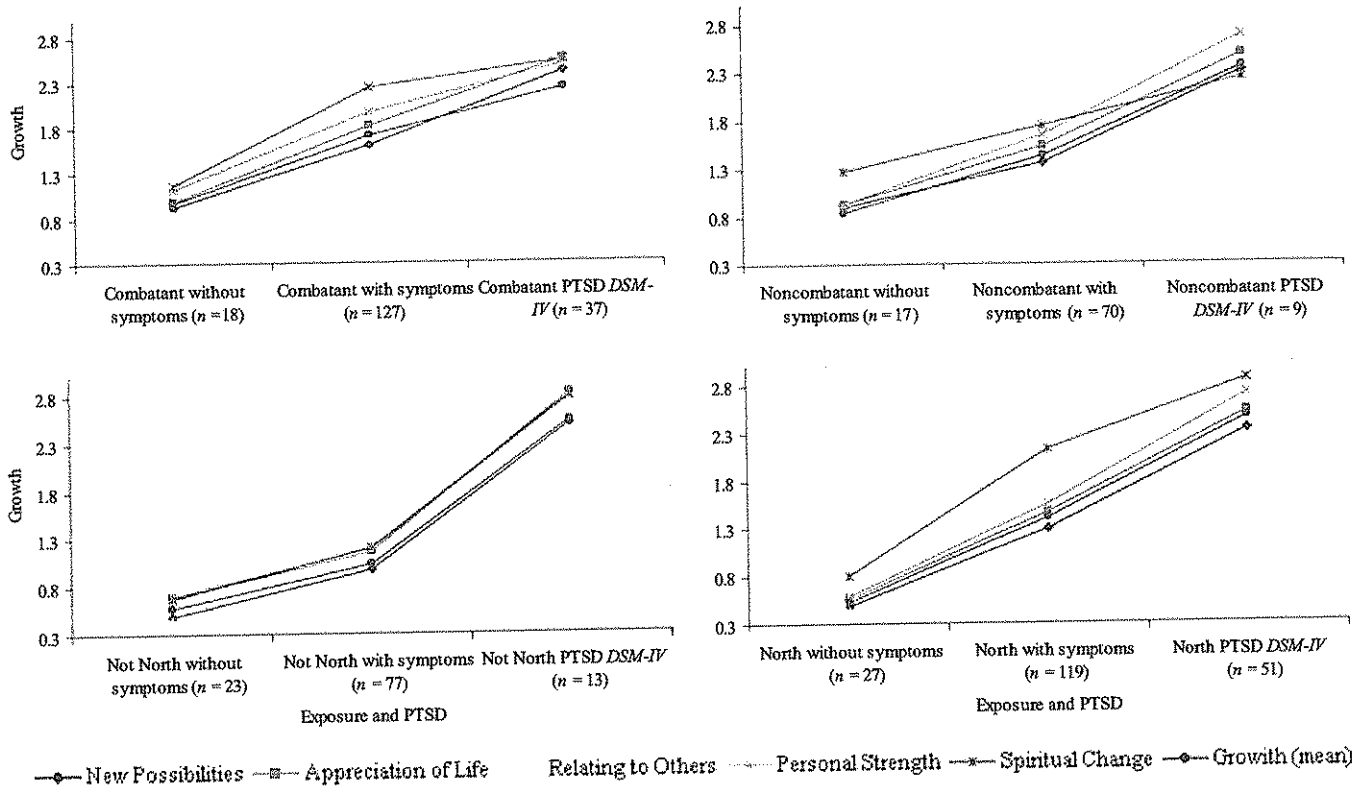

Figure 2. Posttraumatic growth by posttraumatic stress disorder (PTSD) and exposure levels among Israeli civilians and military personal present during the second Lebanon war.

exceeded $\eta^2 = 0.14$. In sum, these results extended and replicated the Study 1 findings from adolescents to adults and showed that the highest resilience was associated with the least posttraumatic growth.

DISCUSSION

The present results based on two large samples of survivors of war and terror show an inverse relationship between growth and resilience. The findings support the contention that resilience conceptualized and measured by a lack of PTSD following adversity is inversely associated with posttraumatic growth (Tedeschi & Calhoun, 2004; Westphal & Bonanno, 2007). These findings appear to be intriguing, as resilience and posttraumatic growth are both salutogenic outcomes and so intuitively should be positively related. Scrutiny of the empirical literature, however, shows that these findings are consistent with research showing a link between vulnerability (PTSD) and posttraumatic growth (Tedeschi & Calhoun, 1996).

There may be at least two possible explanations of these findings. Resilience refers to a broad cluster of personal characteristics that facilitate the ability to manage despite trauma. These characteristics include hardiness, optimism, self-enhancement, repressive coping, positive affect, and a sense of coherence (Agaibi & Wilson, 2005; Bonanno, 2004; Tedeschi & Calhoun, 2004). Collectively, these characteristics permit such people to emerge from trauma with less psychological wounds and relatively unchanged. Unlike resilience, growth represents a change for the better following adversity (Tedeschi & Calhoun, 1996). Accordingly, posttraumatic growth only occurs if trauma has been upsetting enough to drive the survivor to (positive) meaning-making of the negative event. Resilience may make a person less likely to perceive threat to self or world views. Thus, more resilient people are more able to mitigate the impact of the event. Accordingly, if growth is the need to find meaning to a traumatic event (Tedeschi & Calhoun, 1996, 2004), resilient people are less likely to engage in the meaning-making behaviors (Bonanno, Wortman, & Nesse, 2004) that are associated with growth because they are unlikely to struggle with the implications of the trauma. Therefore, it has been argued that resilient outcomes may provide little need or opportunity for posttraumatic growth (Westphal & Bonanno, 2007).

Another explanation debated in the literature (Sumalla, Ochoa, & Blanco, 2009) suggests that posttraumatic growth is a positive illusion of "wishful thinking" (Johnson et al., 2007; Maercker & Zoellner, 2004). It is a cognitive bias that reflects unrealistically optimistic beliefs (Taylor, 1983). The need for positive outcomes to adversity is observed among those who lack resilience (i.e., are more vulnerable). Among more vulnerable survivors trauma produces an imbalance in equilibrium that they strive to rectify by showing unrealistic optimism. Because resilient individuals retain their equilibrium they need not resort to unrealistic optimism. This is consistent with research showing that perceived benefits follow the trauma of victimization (McFarland & Alvaro, 2000), growth following man-made trauma (Hobfoll et al., 2009), cognitive adaptation theory (Taylor, 1983), and conceptualization of growth as a beneficial illusion.

The current studies do not, however, permit the adoption of one particular explanation. Also, resilience is measured as a lack of PTSD, is diversely defined, and may reflect a constellation of personal characteristics. Accordingly, the absence of PTSD need not mean resilience (Almedom & Glandon, 2007). Thus, longitudinal multimethod research is appropriate to examine the different explanations and the temporal order of PTSD, resilience, and growth (Hobfoll et al., 2007), and to distinguish different conceptualizations and measures of resilience (i.e., resistance, resilience, and reconfiguration; Bonanno, 2004).

In conclusion, our findings based on two large samples exposed to man-made traumas extend the literature that examines the association between growth and resilience. Generally, high resilience (conceptualized as resistance) leaves little scope for posttraumatic growth. Clinically, this suggests that showing little distress and little growth following adversity may be a healthy sign of resilience, rather than signifying pathological coping. Theoretically, this study highlights that two seemingly similar salutogenic constructs are empirically inversely related.

REFERENCES

Agaibi, C. E., & Wilson, J. P. (2005). Trauma, PTSD, and resilience: A review of the literature. Trauma Violence & Abuse, 6, 195–216.

Almedom, A. M., & Glandon, D. (2007). Resilience is not the absence of PTSD any more than health is the absence of disease. Journal of Loss and Trauma, 12, 127–143.

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? American Psychologist, 59, 20–28.

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2006). Psychological resilience after disaster—New York City in the aftermath of the September 11th terrorist attack. Psychological Science, 17, 181–186.

Bonanno, G. A., Wortman, C. B., & Nesse, R. M. (2004). Prospective patterns of resilience and maladjustment during widowhood. Psychology and Aging, 19, 260–271.

Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: The 1996 Detroit Area Survey of Trauma. Archives of General Psychiatry, 55, 626–632.

Frederick, C. J., & Pynoos, R. (1988). The Child Post-traumatic Stress Disorder (PTSD) Reaction Index. Unpublished manuscript, University of California-Los Angeles, Los Angeles, CA.

Hamama-Raz, Y., Solomon, Z., Cohen, A., & Laufer, A. (2008). PTSD symptoms, forgiveness, and revenge among Israeli Palestinian and Jewish adolescents. Journal of Traumatic Stress, 21, 521–529.

Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. Journal of Consulting and Clinical Psychology, 74, 797–816.

Hobfoll, S. E., Hall, B. J., Canetti-Nisim, D., Galea, S., Johnson, R. J., & Palmieri, P. A. (2007). Refining our understanding of traumatic growth in the face of

terrorism: Moving from meaning cognitions to doing what is meaningful. Applied Psychology, 56, 345–366.

Hobfoll, S. E., Palmieri, P. A., Johnson, R. J., Canetti-Nisim, D., Hall, B. J., & Galea, S. (2009). Trajectories of resilience, resistance, and distress during ongoing terrorism: The case of Jews and Arabs in Israel. Journal of Consulting and Clinical Psychology, 77, 138–148.

Johnson, R. J., Hobfoll, S. E., Hall, B. J., Canetti-Nisim, D., Galea, S., & Palmieri, P. A. (2007). Posttraumatic growth: Action and reaction. Applied Psychology, 56, 428–436.

Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. Archives of General Psychiatry, 52, 1048–1060.

Laufer, A., & Solomon, Z. (2006). Posttraumatic symptoms and posttraumatic growth among Israeli youth exposed to terror incidents. Journal of Social and Clinical Psychology, 25, 429–448.

Lavi, T., & Solomon, Z. (2005). Palestinian youth of the Intifada: PTSD and future orientation. Journal of the American Academy of Child and Adolescent Psychiatry, 44, 1176–1183.

Lepore, S. J., & Revenson, T. A. (2006). Resilience and posttraumatic growth recovery, resistance and reconfiguration. In L. G. Calhoun & R. G. Tedeschi (Eds.), Handbook of posttraumatic growth: Research and practice (pp. 264–290). Mahwah, NJ: Erlbaum.

Maercker, A., & Zoellner, T. (2004). The Janus face of self-perceived growth: Toward a two-component model of posttraumatic growth. Psychological Inquiry, 15, 41–48.

McFarland, C., & Alvaro, C. (2000). The impact of motivation on temporal comparisons: Coping with traumatic events by perceiving personal growth. Journal of Personality and Social Psychology, 79, 327–343.

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. Psychological Bulletin, 129, 52–73.

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

Solomon, Z., & Lavi, T. (2005). Israeli youth in the second intifada: PTSD and future orientation. Journal of the American Academy of Child and Adolescent Psychiatry, 44, 1167–1175.

Solomon, Z., Neria, Y., Ohry, A., Waysman, M., & Ginzburg, K. (1994). PTSD among Israeli former prisoners of war and soldiers with combat stress reaction: A longitudinal study. The American Journal of Psychiatry, 151, 554–559.

Sumalla, E. C., Ochoa, C., & Blanco, I. (2009). Posttraumatic growth in cancer: Reality or illusion? Clinical Psychology Review, 29, 24–33.

Taylor, S. E. (1983). Adjustment to threatening events—A theory of cognitive adaptation. American Psychologist, 38, 1161–1173.

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. Journal of Traumatic Stress, 9, 455–471.

Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. Psychological Inquiry, 15, 1–18.

Tedeschi, R. G., Calhoun, L. G., & Cann, A. (2007). Evaluating resource gain: Understanding and misunderstanding posttraumatic growth. Applied Psychology, 56, 396–406.

Westphal, M., & Bonanno, G. A. (2007). Posttraumatic growth and resilience to trauma: Different sides of the same coin or different coins? Applied Psychology, 56, 417–427.