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Examining Psychological Resilience and Posttraumatic Growth Following Terrorist Attacks in Turkey

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Acts of terrorism, being highly prevalent across the world, disrupt community and social functioning and can lead to negative psychological reactions in individuals. However, positive outcomes can also be evoked after adverse experiences. The current study aimed to explore two salutogenic or positive outcomes—resilience and posttraumatic growth (PTG)—following exposure to terrorist attacks. The sample included 331 university students who were exposed to a terrorist attack in Turkey during the last 18 months prior to data collection. Participants responded to the Connor-Davidson Resilience Scale, the Posttraumatic Growth Inventory, and a participant information form. The relationship between resilience and PTG was examined through correlation analysis and regression analyses with linear and quadratic components. Resilience and PTG were positively correlated. Tendency toward spirituality was the only resilience domain that was significantly correlated with all domains of growth. Total score of resilience was significantly associated with scores on all subscales of the Posttraumatic Growth Inventory except appreciation of life. Results indicated that only linear relationships existed between domains of resilience and PTG in the study sample. The positive and linear association between resilience and PTG suggests that resilience may be an important tool for facilitating growth. After terrorist attacks, mental health care planning should adopt a patient-centered approach that acknowledges the possibility of positive outcomes following traumatic events and focuses on the impact as well as recovery phases in traumatized individuals.

Keywords: resilience, posttraumatic growth, psychological trauma, terrorism

Terrorism, in the form of human perpetrated and unanticipated violent acts, has become an important threat to human lives in the 21st century. According to the latest data from the Global Terrorism Database of the National Consortium for the Study of Terrorism and Responses to Terrorism, 22,980 people were killed in more than 9,600 terrorist attacks in 2018 (Miller, 2018). Similar to many countries around the world, Turkey has been suffering from terrorism for a long time. Over the years, terrorist groups have started targeting metropolitan areas of Turkey (Cline, 2004). Between 2015 and 2017, there had been more than 30 brutal terrorist attacks in Turkey with a large death toll and a high number of injuries among the exposed. In 2016, Turkey also witnessed a coup attempt that later resulted in the government's declaration of a state of emergency for almost 2 years (BBC News, 2018). Terrorism in Turkey has resulted in major interruptions in daily activities of citizens, including interrupted education, delayed commuting in cities, and decreased economic transactions, hindering economic growth (Yildirim, Kose, & Tanrivere, 2019). Hence, a significant proportion of Turkish people were directly or indirectly exposed to the effects of terrorism with tangible and/or intangible costs. The current study focused on the aftermath of terrorist attacks in Turkey.

In case of terrorism, it is acknowledged that both the events that had occurred and the anticipation of future attacks that may yet occur contribute to the trauma associated with attacks (Butler, Morland, & Leskin, 2007). Randomness and perceived uncontrollability of threat dramatically increase the negative psychological impact of terrorist acts (Friedland & Merari, 1985). Individuals exposed to terrorism are at risk of various psychiatric disorders (Fullerton, Ursano, Norwood, & Holloway, 2003). Following terrorist attacks, symptoms of posttraumatic stress disorder (PTSD) such as intrusive thoughts or images as well as anxiety, panic, phobia, bereavement-related symptoms, sadness, fear, concentration problems, irritability/anger, sleep problems, isolation, and withdrawal have been commonly reported in the general population (Miller & Heldring, 2004). Repeated attacks in an individual's living area may result in a sense of helplessness and hopelessness and decrease the likelihood of proactive behaviors (Mansdorf & Weinberg, 2003). Terrorism is very powerful and pervasive in generating disruptions in community and social functioning and distress in community members (Fullerton et al., 2003). This requires a better understanding of mental health outcomes following terrorist attacks.

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Many disciplines including psychology traditionally focus on negative outcomes such as PTSD following traumatic events (Tedeschi & Calhoun, 2004). However, psychopathological symptoms in the general population after terrorist attacks can be fairly short-lived, and continued terrorism may not significantly affect aspects of positive functioning and development (Vázquez, Pérez-Sales, & Hervás, 2008). Over the past decades, the field of mental health has fueled interest in positive or salutogenic (in contrast to pathological) outcomes, especially psychological resilience and posttraumatic growth (PTG). The current study focused on these two outcomes, especially the relations between them.

Although there is no consensus on the definition of psychological resilience in the literature, it is commonly addressed as the ability to maintain healthy levels of psychological and physical functioning following exposure to highly disruptive events (Bonanno, 2004) and as a driving force for recovery or the mental capacity to resist adversities (Amering & Schmolke, 2009). Reissman, Klomp, Kent, and Pfefferbaum (2004, p. 630) have suggested that "resilient people are not immune to the experience of adverse events. Rather, they are able to understand and critically evaluate events and to show rapid psychobiological recovery". Although historically ignored and underestimated, resilience to violent and life-threatening events is not uncommon (Bonanno, Westphal, & Mancini, 2011; Pietrzak et al., 2014). Following the 9/11 attacks in New York City, studies have found that almost half of the subjects reported no or only one PTSD symptom (Bonanno, Galea, Bucciarelli, & Vlahov, 2006; Galea et al., 2002), and acute traumatic stress symptoms rapidly declined over a 1-year period (Matt & Vázquez, 2008). It has been also shown that many individuals reported experiencing positive emotions after the attacks, buffering depression and fueling thriving (Fredrickson, Tugade, Waugh, & Larkin, 2003).

Studies of terrorism have also suggested that there is a potential for PTG in people who have experienced terrorist attacks. PTG is the positive personal and psychological changes experienced as a result of the struggle with challenging life events (Tedeschi & Calhoun, 2004). PTG does not suggest that negative mental health consequences of trauma are nonexistent (Lindstrom & Triplett, 2010); instead, it indicates that "persons who experience it are living life in ways that, at least from their point of view, are fuller, richer, and perhaps more meaningful" (Tedeschi & Calhoun, 2006, p. 7). Following exposure to terrorism, emotional suffering can be catalyst for PTG (Bayer-Topilsky, Itzhaky, Dekel, & Marmor, 2013), and people reporting higher levels of psychological distress tend to perceive higher levels of growth (Blix, Birkeland, Hansen, & Heir, 2016; Hobfoll et al., 2007). However, Bitton and Laufer (2017) warned that this association is not simple as it seems. They have shown that active coping mediated the relationship between stress and growth in a sample exposed to terrorism, highlighting the importance of coping and resilience for growth to occur. In the context of terrorism, PTG has been shown to be associated with positive changes in worldview, increases in acceptance and positive reframing (Butler et al., 2005), and higher levels of life satisfaction (Blix, Hansen, Birkeland, Nissen, & Heir, 2013). Nevertheless, it has been also suggested that there is an illusory and dysfunctional side to PTG (Maercker & Zoellner, 2004) and it can lead to a false sense of positive expectations, reflecting an ineffective attempt to claim resilience (Hobfoll et al., 2009). These suggest that growth and resilience following experiences of terrorism need to be better understood.

A closer look at psychological resilience and PTG shows that there is a need for further knowledge concerning the relationship between two concepts. A recent systematic review showed that growth is one of the most common themes in conceptualization of resilience, suggesting that several texts equate growth with resilience (Ayed, Toner, & Priebe, 2019). For instance, Freund and Staudinger (2015) considered resilience as a basis for growth to occur. However, Tedeschi and Calhoun (2004) addressed resilience and PTG as distinct concepts. Specifically, they have suggested that resilience is not transformative as PTG because traumatic events might not be challenging to resilient individuals. Similarly, Westphal and Bonanno (2007) discussed that resilient outcomes provide little need or opportunity for growth. Steele and Kuban (2011) stated that while resilience refers to positive psychological and emotional attributes, PTG is the outcome of successful coping with trauma. On the other hand, Lepore and Revenson (2006) suggested that PTG is a form of psychological resilience. They argued that resilience has three facets (resilience, resistance, and reconfiguration), and PTG might be observed in individuals going through the process of reconfiguration resilience.

There are only a few empirical studies examining the link between PTG and resilience following trauma exposure. Although a number of studies (Bensimon, 2012; Duan, Guo, & Gan, 2015; Nishi, Matsuoka, & Kim, 2010; Penagos-Corzo, Tolamatl, Espinosa, Ruiz, & Pintado, 2019; Zeidner, & Kampler, 2020) reported a positive relationship between the two constructs, some studies (Hobfoll et al., 2009; Levine, Laufer, Stein, Hamama-Raz, & Solomon, 2009; Zerach, Solomon, Cohen, & Ein-Dor, 2013) showed an inverse relationship, and some (Rodríguez-Rey et al., 2017) found no relationship at all. Among studies showing relationships between the constructs, some (Kaye-Tzadok & Davidson-Arad, 2016; Li, Cao, Cao, & Liu, 2015) provided evidence for a curvilinear relationship. Therefore, the studies on the relationship between PTG and resilience showed mixed results, possibly owing to different conceptualizations and study methods. Moreover, none of those studies investigated the relationships between distinct domains of psychological resilience and PTG.

This study aimed to examine psychological resilience, PTG, and their interrelationship in a sample exposed to various terrorist attacks in Turkey. Psychological outcomes following terrorist attacks and especially positive outcomes are rarely studied topics in the literature. Hence, an investigation of PTG and resilience in the face of terrorism would promote a more complete perspective on psychological sequalae of human-made disasters and expand our understanding of positive psychological outcomes following trauma. In addition, the period between the age of 18 and 25, also called emerging adulthood, is a unique developmental stage that is different from adolescence and young adulthood demographically, subjectively, and in terms of identity exploration (Arnett, 2000). During this age period, exposure to terrorism might enhance already existing internal confusions, shatter assumptions of human benevolence and worthiness of oneself, decrease attachment to place (Okay & Karanci, 2020), and have a scarring effect on self (Schiller, Pinus, Hammen, & Shahar, 2019). Therefore, it is important to understand the experiences of this group following possible traumatic events.

Method

Sample

The sample consisted of a total of 331 university students (175 women and 156 men) enrolled in undergraduate programs. The mean age was 21.13 ($SD = 1.53$) for the sample. A total of 199 participants (60.1%) were directly and 132 participants (39.9%) were indirectly exposed to terrorist attacks. Among 132 participants who mentioned that they were indirectly exposed to attacks, 27 (8.2%) reported witnessing the trauma, 60 (18.1%) reported learning that a relative or close friend was exposed to a trauma, and 45 (13.6%) reported indirect exposure to aversive details of the trauma in the course of rescue efforts, and so forth. Mean time between the event (the last event if the participants reported experiencing more than one terrorist attack in the last 18 months), and the date of data collection was 15.68 ($SD = 2.08$) months.

Instruments

A participant information form was prepared by the authors to collect information about gender, age, and trauma exposure. Potential participants were asked about exposure to a terrorist attack in Turkey in the last 18 months before the data collection period. Participants who responded "No" to the question about exposure were asked to discontinue filling out the survey form. Trauma exposure was defined in accordance with the criterion A for PTSD in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (American Psychiatric Association, 2013), and participants were asked to select the type of exposure stating the details (place and time) of the attack(s) they had experienced and to respond to the study instruments thinking about their experience.

The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to assess the degree of positive changes experienced in the aftermath of traumatic events. The PTGI includes 21 items rated on a 6-point Likert-type scale. Mean scores of the total scale and subscales are calculated, and higher scores indicate higher levels of growth. The original version has acceptable internal consistency, test–retest reliability, and validity. It was translated into Turkish by Dirik and Karanci (2008). Karanci and colleagues (2012) tested the original five-factor model of PTG, showing that the model fit the data very well. The Turkish form was reported to have a similar factor structure as the original form and acceptable reliability with Cronbach's α values ranging between .63 and .84. The factors were labeled as new possibilities (five items), relating to others (five items), personal strength (four items), spiritual change (four items), and appreciation of life (three items).

The Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was included in the study to measure stress-coping ability of individuals. The CD-RISC includes 25 items rated on a 5-point Likert-type scale. Total score and subscale scores are calculated by summing up the item scores. Higher scores indicate higher levels of resilience. The scale had satisfactory psychometric properties. The scale for translated and adapted into Turkish by Karaırmak (2010). The Cronbach's α coefficient of internal consistency for the Turkish form was .92 with coefficients for subscales ranging between .50 and .93. The factors were labeled as tenacity and personal competence, tolerance of negative affect, and tendency toward spirituality. These subscales include 15, seven, and three items, respectively.

Procedure

Participants were recruited at a university campus in Ankara, Turkey, on their availability and volunteering for participation. Participants signed a written informed consent form which included information about the purposes, confidentiality, anonymity, and rights of the participants. Ethics committee approval was obtained from the Applied Ethics Research Center of TOBB University of Economics and Technology before data collection. Data were collected between September and November 2017.

Data Analysis

Analysis was performed using the IBM SPSS Statistics v25.0 computer software (IBM Corp, 2017). Data were tested for ensuring assumptions of normality, linearity, and equality of variance prior to the analysis. Descriptive statistics were calculated for demographic and study variables. Relationships between age and study variables were not examined due to restricted range of age in the sample of university students. Main analyses included an analysis of Pearson product–moment correlation coefficients between domains of resilience and PTG, and a series of regression analyses with both linear and quadratic models to examine the nature of relationships between the two constructs.

Results

Descriptive Analyses

Mean scores of women ($M = 2.25$, $SD = 0.96$) on the PTGI were significantly higher than the mean scores of men ($M = 1.85$, $SD = 0.98$), $t(329) = 3.74$, $p \leq .001$. However, there was no significant difference between women ($M = 64.25$, $SD = 12.83$) and men ($M = 64.77$, $SD = 14.48$) on total scores on the CD-RISC, $t(329) = -0.35$, *ns*.

When scores on the CD-RISC and the PTGI were examined based on the type of exposure to terrorist attacks, it was found that there were no differences in the scores on the PTGI between participants who were directly ($M = 2.01$, $SD = 1.01$) or indirectly ($M = 2.13$, $SD = 0.97$) exposed, $t(329) = -1.13$, *ns*. However, participants who were directly exposed to attacks ($M = 65.82$, $SD = 13.15$) had higher resilience scores than participants who reported indirect exposure ($M = 62.50$, $SD = 14.11$), $t(329) = -2.18$, $p < .05$. Time since event was not significantly associated with total PTG, $r = -.06$, *ns*.

Relationships Between Resilience and PTG

Correlations between domains of resilience, PTG, and total scores on the CD-RISC and the PTGI showed that total scores on the CD-RISC and the PTGI were positively correlated, $r = .31$, $p \leq .001$. Higher scores on the CD-RISC were positively correlated with scores on all subscales of the PTGI at $p \leq .001$ except appreciation of life. Tendency toward spirituality was the only resilience domain that was correlated with all five PTG domains, $r = .15$ to $.36$, $p \leq .001$. Table 1 shows means and standard

Table 1
Means and Standard Deviations of Study Variables, Cronbach's Alpha Values of Scales and Bivariate Correlations

Variable	*M*	*SD*	α	1	2	3	4	5	6	7	8	9	10
Domains of posttraumatic growth													
1. New possibilities	1.76	1.11	.74	1									
2. Relating to others	1.86	1.22	.77	.53**	1								
3. Personal strength	2.17	1.25	.70	.52**	.38**	1							
4. Spiritual change	2.14	1.37	.79	.63**	.69**	.36**	1						
5. Appreciation of life	2.61	1.50	.88	.51**	.50**	.24**	.64**	1					
6. Total posttraumatic growth	2.06	0.99	.91	.82**	.82**	.64**	.86**	.72**	1				
Domains of psychological resilience													
7. Tenacity and personal competence	40.90	9.23	.87	.25**	.19**	.32**	.15**	.09	.26**	1			
8. Tolerance of negative affect	16.49	4.78	.68	.20**	.17**	.30**	.05	−.03	.18**	.64**	1		
9. Tendency toward spirituality	7.10	2.65	.51	.24**	.33**	.15**	.41**	.24**	.36**	.22**	.13*	1	
10. Total psychological resilience	64.49	13.61	.87	.29**	.25**	.35**	.20**	.09	.31**	.95**	.81**	.39**	1

* $p < .05$. ** $p < .01$.

deviations, Cronbach's α values of the scales in the study, and correlations between study variables.

In the regression analyses, gender was entered in the first step as a control variable followed by linear and quadratic components in subsequent steps. Gender (coded as 1 = women, 2 = men) significantly contributed to the model, β = −.20, $t(329) = -3.740$, $p \leq .001$. All linear components of resilience significantly and positively predicted PTG at $p < .05$ with standardized coefficients ranging between 0.213 and 0.333. In other words, higher levels in three domains of resilience were associated with higher PTG levels. None of the quadratic components significantly predicted total PTG scores in this study (β values ranging between −0.171 and 0.086). Table 2 shows a comparison of linear and quadratic fits of PTG separately regressed on domains of resilience and total score of resilience.

Discussion

This study examined the relationships between resilience that was the conceptualized as ability to cope with stress and PTG following direct or indirect exposure to terrorist attacks. Compared to the current study, the majority of previous studies used different conceptualizations for resilience, did not study relationships between the domains of resilience and/or PTG, and/or samples in those studies had different characteristics (i.e., other types of trauma exposure). When resilience was conceptualized as a stress-coping ability instead of having no PTS symptoms as in most studies in the field of trauma research, it was positively related with PTG. This suggests that ability to cope with stress facilitates PTG following trauma exposure and confirms the findings of some studies in other trauma-exposed populations (Bensimon, 2012; Duan et al., 2015; Nishi et al., 2010; Penagos-Corzo et al., 2019; Zeidner & Kampler, 2020). The linear relationship between resilience and PTG observed in the current study further provides empirical evidence for that resilience might be a buffer for recovery and a collection of resources necessary to promote growth (Morland, Butler, & Leskin, 2008).

Women reported perceiving higher levels of growth than men, as consistent with previous meta-analyses on gender differences in PTG (Helgeson, Reynolds, & Tomich, 2006; Vishnevsky, Cann, Calhoun, Tedeschi, & Demakis, 2010), which suggested that women tend to ruminate on constructive issues (importance of social connections), to use emotion-focused coping strategies including positive reappraisal or acceptance, and to engage in more positive self-talk. However, gender differences were not evident

Table 2
Summary of the Regression Analyses With Linear and Quadratic Terms of Resilience Domains Predicting Total Posttraumatic Growth

Predictor	95% confidence interval for *B*	β	*t*	*p*	Adjusted R^2 (model)
Tenacity and personal competence					
Step 1: Linear term	[0.017, 0.039]	0.262	5.020	0.000	0.104
Step 2: Quadratic term	[−0.001, 0.001]	0.021	0.066	0.947	0.101
Tolerance of negative affect					
Step 1: Linear term	[0.022, 0.060]	0.213	4.005	0.001	0.080
Step 2: Quadratic term	[−0.004, 0.003]	−0.069	−0.267	0.799	0.077
Tendency toward spirituality					
Step 1: Linear term	[0.086, 0.163]	0.333	6.410	0.000	0.142
Step 2: Quadratic term	[−0.016, 0.0057]	−0.171	−0.796	0.427	0.141
Total psychological resilience					
Step 1: Linear term	[0.015, 0.030]	0.313	6.116	0.000	0.134
Step 2: Quadratic term	[0.000, 0.001]	0.086	0.282	0.778	0.131

for resilience in the current study. This is inconsistent with studies showing that female gender is associated with a reduced likelihood of resilience (Bonanno, Galea, Bucciarelli, & Vlahov, 2007), and women endorsed psychological symptoms more often than men after terror events (Solomon, Gelkopf, & Bleich, 2005). The difference in findings may be due to different conceptualizations referring to resilience (e.g., poor mental health vs. stress-coping ability) or to different elements of resilience (e.g., resilient outcomes, processes, attributes).

There were no significant differences in PTG scores between those who were directly and indirectly exposed to terrorist attacks in the study sample. Although objective severity of the event and perceived stress have been shown to be related to more growth in the meta-analysis by Helgeson et al. (2006), some studies have found no significant association between direct or indirect exposure and mental health outcomes (e.g., Bayer-Topilsky et al., 2013), suggesting that there might be other factors including loss or perceptions of threat which can be more important for PTG than exposure alone. Indeed, Bayer-Topilsky et al. (2013) have shown that subjective severity of exposure has been related to higher PTG only when accompanied with posttraumatic stress. Participants in the current study might have had low levels of stress. Moreover, PTG was not significantly correlated with time since event in the current study, as consistent with the meta-analytical findings of Helgeson et al. (2006). The relationship between time since event and PTG has been shown to be heterogenous in nature with distinct clusters characterized by differential associations (Morgan & Desmarais, 2017). Future studies would use longitudinal data following people with experiences of terrorism over time to better understand the relationships between time since event and PTG.

In general, a higher level of resilience was associated with all PTG domains but not with appreciation of life in the current study, suggesting that growth following trauma may only be observed in specific domains in resilient individuals. Changes in appreciation of life may foster individuals' awareness of fragility of life and their mortality, leading to the revision of their schemas (Zoellner & Maercker, 2006). However, it is believed that resilient individuals do not typically engage in meaning-making behaviors associated with PTG (Westphal & Bonanno, 2007). Although they may experience short-lived spikes in stress-related symptoms, they do not struggle to the same extent as might highly traumatized others. Psychological resilience influences event appraisals after a potentially stressful situation and protects individuals from negative appraisals (Fletcher & Sarkar, 2013). Nevertheless, resilient individuals do not engage in continuous positive appraisal of negative events as this jeopardizes the veridicality of judgment and impairs one's ability to stay tuned with reality (Freund & Staudinger, 2015). Facing the negative and struggling to adapt to the environment may partially hinder appreciation for one's life but continue fostering growth in other domains. Still, future research should further investigate the characteristics of event appraisals leading to growth in individuals exposed to trauma. Moreover, it has been previously suggested that only survivors exposed to long periods of terrorism would show changes in their philosophy of life (Hirsch & Lazar, 2012). Participants in the study sample reported to have been exposed to a maximum of three attacks in their lifetime. It is possible that growth in this domain may require repeated and prolonged exposure to terrorism to occur.

In the current study, tendency toward spirituality was the only resilience domain to be related with all domains of growth. It has been also previously discussed that productive and positive spiritual reflection following terrorist attacks lead to positive outcomes (Kelly, 2007). However, spirituality can also be a source of interpersonal, intrapersonal struggles, or struggles with the divine leading to decline in adjustment (Pargament, Desai, & McConnell, 2006). Future studies should elaborate on which spirituality ingredients might contribute to growth. In addition, given that recovery following trauma is both an individual capacity and a function of the individual's context and culture (Ungar, 2013), searching for cultural explanations and investigating whether spiritual tendencies would mediate the relationships between resilience and growth may be important foci for future research. Karaırmak (2010) pointed out that the Spirituality subscale of the CD-RISC had a lower Cronbach's α value compared to other subscales, arguing that the spirituality construct is not culturally developed yet in Turkey. In the current study, a similar Cronbach's α value was obtained for this subscale. It has been suggested that it is common to find low values with short scales (Tavakol & Dennick, 2011). Moreover, an α value between .5 and .75 is taken to indicate a scale of moderate reliability by some researchers (Hinton, McMurray, & Brownlow, 2014). Nevertheless, low reliability is not always a function of the scale length and might have attenuated estimates of the relationship between spirituality and other variables (Schmitt, 1996). Future studies should use longer measures of spirituality with better reliability estimates. In samples of university students in Turkey, spirituality has been positively associated with life satisfaction, positive affectivity, and optimism (Ozturk & Sivis-Cetinkaya, 2015), and a history of trauma is associated with lessened spirituality (Güloğlu, Karairmak, & Emiral, 2016). Thus, aiming to promote spirituality in mental health settings can be a significant way to facilitate well-being and PTG following experiences of terrorism. However, as Eksi, Takmaz, and Kardas (2016) pointed out, consistent with research findings in other countries, mental health professionals in Turkey often lack training about how to transfer spirituality into the therapeutic process. Offering systematic training and supervision for integration of spiritual matters into the process might help to facilitate growth in all domains.

Findings of the current study also showed that individuals who were directly and possibly more severely exposed to terrorist attacks had even higher resilience levels compared to individuals reporting indirect exposure. Therefore, after terrorist attacks, mental health care planning should adopt a patient-centered approach which acknowledges the possibility of positive outcomes following traumatic events. Furthermore, the current study showed that for every 1-unit increase in resilience, there was a 0.3-unit increase in PTG. The study of resilience might help to uncover the role of PTG in positive adjustment following trauma by providing clues on how flexible coping strategies might lead to growth experiences (Westphal & Bonanno, 2007). Promoting growth can be a legitimate therapeutic aim (Linley & Joseph, 2004), and this study suggests that PTG can be promoted by facilitating resilience. Increased knowledge on resilience and domains in turn may help to develop and apply interventions aimed at increasing adaptive strategies and resources for coping with stress and eventually to facilitate PTG in trauma-exposed samples. Health care planning in the aftermath of terrorism should not only focus on the impact

stage but also on the recovery stage and also on the restoration of positive elements such as hope and morale (Ursano, Fullerton, & Norwood, 2003).

To the best of the authors' knowledge, the current study is the first to provide empirical evidence for the relationships between domains of resilience and PTG in the context of terrorism and is also the first to explore those relationships in a Turkish sample. However, it is not without limitations. The cross-sectional design adopted in the study prohibits drawing conclusions about a causal connection between variables. Controlling for any other traumatic events following exposure to terrorist attacks would also be important in future studies. Moreover, the sample consisted of university students and was not representative of the general population, limiting the generalizability of the study findings. Regarding sample characteristics, measures were limited with age, gender, and characteristics of the terrorist attack(s) experienced. It is highly important to focus on other variables such as person- or event-related characteristics (e.g., other traumatic events experienced by participants) and on negative mental health outcomes in future studies with representative samples to be able to capture rich and complex interactions between factors leading to distinct outcomes. In addition, a consensus on the definition of resilience needs to be sought in future studies in order to clearly understand the relationship of resilience with other functional outcomes in the field of trauma studies.

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