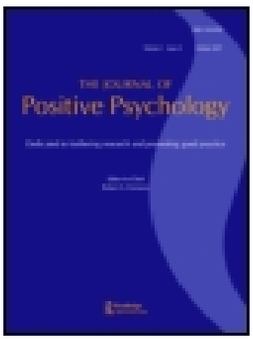

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The aging of heroes: Posttraumatic stress, resilience and growth among aging decorated veterans

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ABSTRACT

Despite increasing interest in the mental health of aging veterans, the pathogenic and salutogenic ramifications of war have not been investigated among aging veterans who received decorations of valor. Filling this gap, 73 Israeli decorated veterans (DVs) and 73 non-decorated veterans (n-DVs) (M_{age} = 68.5) were assessed for posttraumatic stress symptoms (PTSS), depression and anxiety 18 and 45 years after the war, and for posttraumatic growth (PTG) 45 years after the war. Analyses revealed deteriorating posttraumatic avoidance among n-DVs but not among DVs, and significantly lower rates of anxiety and depression and higher rates of PTG among the DVs. These findings suggest that factors related to being a DV may foster resilience to posttraumatic sequelae and are potentially conducive to PTG in later life. Though the study precludes making causal inferences, it serves as a springboard for future investigations into positive mechanisms underlying DVs' relative resilience and growth in later life.

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Decorated veterans; aging; posttraumatic stress; resilience; PTG

Introduction

A rapidly accumulating body of research indicates that combat veterans may evince both pathogenic and salutogenic responses in the aftermath of war. On the pathogenic side, war places veterans at risk of myriad psychological sequelae, the most conspicuous and long-lasting of which is posttraumatic stress disorder (PTSD), which may linger for decades (e.g., O'Toole & Catts, 2017; Steenkamp et al., 2017). Accruing additional mental strife, studies find that PTSD among veterans is often comorbid with pathological anxiety and depression (e.g., Campbell et al., 2007; Flory & Yehuda, 2015; Pfeiffer, Ganoczy, Ilgen, Zivin, & Valenstein, 2009). Notwithstanding, some veterans are more resilient than others (i.e., exhibit low or remitting symptomatology; e.g., Bonanno et al., 2012). Furthermore, on the salutogenic side, veterans may evince positive personal alterations such as enhanced personal relationships, increased sense of potency, spiritual growth and new developmental horizons relating to their traumatic war experiences (Larner & Blow, 2011; Tedeschi, 2011; Tsai, Sippel, Mota, Southwick, & Pietrzak, 2016), a phenomenon typically identified as *posttraumatic growth* (PTG; Tedeschi & Calhoun, 1995, 2004). It is noteworthy that posttraumatic resilience and PTG are considered different phenomena, as PTG often manifests alongside posttraumatic stress symptoms (PTSS; e.g., Shakespeare-Finch & Lurie-Beck, 2014; Westphal & Bonanno, 2007). Moreover, the finding that PTG may be related to additional negative experiences, has led researchers to the realization that regardless of its ostensibly favorable attributes, PTG is not always entirely positive (Zoellner & Maercker, 2006).

Though, the literature devoted to veterans' trauma is by now voluminous, not all veterans are equally represented. Specifically, with the turn to positive psychology (Linley, Joseph, Harrington, & Wood, 2006; Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005), it is striking that while vast amounts of research invested in veterans' pathogenic and salutogenic reactions to trauma have resulted in the growing effort to identify individual differences among veterans, veterans who have received medals of valor for their service remain extremely under investigated. Indeed, although military decorations are part and parcel of military institutions worldwide (Clarke, 2001), it is currently unknown whether decorated veterans (DVs) differ from non-decorated veterans (n-DVs) as far as posttraumatic pathology, resilience and growth are concerned, both in the short-term (i.e., mid-adulthood)

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and long-term (i.e., as they enter old age) aftermath of war. The present study takes a preliminary step towards filling this gap by comparing aging Israeli DVs and n-DVs on measures of PTSS, anxiety, depression and PTG.

Several empirical findings lead to the postulation that DVs would evince more favorable (i.e., less pathogenic and more salutogenic posttraumatic reactions) than n-DVs. Posttraumatic reactions, whether pathogenic or salutogenic, are invariably related to meaning-making processes (Park, 2010; Park, Riley, & Snyder, 2012), and may, therefore, be associated with the manner in which war experiences are appraised. From a cognitive perspective (Ehlers & Clark, 2000), the manners in which a traumatic event and its psychological aftermath are perceived and appraised are crucial for the manifestation and persistence of psychopathology, as are appraisal of post-deployment circumstances (Wright et al., 2015). Framing DVs' actions as outstanding and giving them publicity as such may frame the war in such a manner that mitigates the negative, potentially traumatic, view of war as primarily a domain of death and loss. Such appraisals may be substituted with a more favorable view of war as a place wherein both personal and national valor and endurance were exercised (Efrati, 2011). Additionally, while the fundamental view of oneself and the world as mostly good and competent may be shattered by traumatic experiences (Janoff-Bulman, 1992), the public veneration that decorations bestow upon DVs may enhance their view of themselves and thus mitigate such detrimental repercussions of trauma. Furthermore, especially in Israel, the public acknowledgment of DVs as national heroes, harbors also more tangible rewards such as promotions in various domains (e.g., employment and politics) and better social attention on the basis of their heroic backgrounds (Ben-Tzedef, 2017). These may provide additional coping resources, which are critical for stress management (Hobfoll, 1989, 2002); and may facilitate more social support, which is associated with more favorable posttraumatic outcomes (Brewin, Andrews, & Valentine, 2000). Ultimately, the public acknowledgement garnered by the decorations may also be conducive to PTG, which typically includes increases in aspects such as the value of interpersonal relationships, embracing new possibilities, realizing personal strengths and overall increments in appreciation of life (Tedeschi & Calhoun, 1995). Furthermore, growth after adversity has been associated with realizing and pursuing new opportunities (Roepke & Seligman, 2015), which decorations may facilitate. As veterans make the transition to old age, such processes may gain prominence.

Erikson and Erikson (1998) contended that as people enter the seventh decade of life, they engage in a reflective life-review process wherein they attempt to make sense of the experiences they have undergone throughout the lifespan, so as to evaluate the life they had led. The life-review process may culminate in a sense of completeness and integrity or, in less favorable cases, in a sense of failure and despair. Interestingly, while some research suggests that war experiences may be conducive to increased distress in late-life (Davison et al., 2016; King, King, Vickers, Davison, & Spiro, 2007), others have demonstrated that war experiences may lead to more positive aging processes and later-life personal growth (Lee, Aldwin, Choun, & Spiro, 2019; Spiro, Settersten, & Aldwin, 2016). Such opposite directions suggest the existence of underlying individual differences. Empirical studies suggest that DVs may possess higher leadership attributes than n-DVs and may rate their preformance under stress relatively more favorably (Gal, 1986; Wansink, Payne, & Van Ittersum, 2008). It is plausible that these personal characteristics and the public acknowledgement that DVs receive after the war also serve as protective factors in later life. Moreover, given that old age presents several challenges and losses, including but not limited to the death of loved ones, the onset of physical health declines and increased disability (Larzelere, Campbell, & Adu-Sarkodie, 2011), it may be that those who have excelled when faced with the mortal adversities of the battlefield (i.e., DVs) may also prove more resilient to war's posttraumatic aftermath in the wake of old age adversity. Though the examination of causal mechanisms is beyond the scope of the current investigation, and is indeed premature given the dearth of research in this domain, their plausibility warrants an epidemiological investigation into group differences between DVs and n-DVs.

In the present study we revisited Israeli decorated and non-decorated veterans of the 1973 Yom Kippur War who were investigated in a larger study 18 years after the war (Dekel, Solomon, Elklit, & Ginzburg, 2004) and are now into their seventh decade of life. DVs in this study all received one of the three highest medals stipulated by Israeli law (The Kneset, 1970), each awarded for a specific action during the war: The Medal of Valor, the highest decoration in the Israeli Defense Force (IDF), awarded for performing a supreme act of valor while facing the enemy and risking one's life; the Medal of Courage, awarded for an act of heroism during combat while being in mortal danger; and the Medal of Distinguished Service, awarded for an act performed with courage and worthy of setting an example of exemplary service. Of approximately 375,000 IDF troops who fought in the war (Rabinovich, 2004), only 292 (7.8%) veterans have been bestowed with such medals.

In light of the literature reviewed above, we hypothesized that overall there would be more resilience and growth among the aging DVs than the n-DVS. In this respect, while resilience may be defined in various manners (Bonanno, 2012), it is defined here as lower psychiatric symptomatology in the aftermath of internal or external adversity. Specifically, we hypothesized that DVs will report lower PTSS, depression and anxiety as well as higher levels of PTG compared to n-DVs.

Materials and methods

Participants

A cohort of 201 veterans of the IDF who participated in the 1973 Yom Kippur War was initially approached in 1991 (T1), and revisited in 2018 (T2). Of the original cohort, 98 participants were DVs (33.5% of the war's DVs), of whom 73 participated at T2 (74.5%; 10 refused to participate, 3 could not be located, 11 were deceased, and 1 could not participate due to physical condition); and 73 were n-DVs, all of whom participated at T2. Though the war has resulted 292 medals, of which, eight (2.7%) were Medals of Valor, three of which were awarded posthumously; 91 (31.2%) were Medals of Courage, and 193 (66.1%) were Medals of Distinguished Service (Drori, 2015), we could not locate recipients of the Medal of Courage. All DVs in the study were awarded the Medal of Distinguished Service except for one who was awarded the Medal of Valor. The analyses in the current study were conducted among all 146 participants who participated at T2 (i.e., 73 DVs and 73 n-DVs).

Participants were identified via the IDF records and were approached by phone-call, whereby they were informed as to the purpose of the study and were asked to participate. At T1 the questionnaires were administered at a medical center in central Israel, and at T2 they were administered at the participants' location of choice. Before filling out the questionnaires, the participants signed an informed consent form. The study was approved by the Tel Aviv University Institutional Review Board.

The groups did not differ in physical ($\chi^2(1) = .61$, $p = .44$) and psychological problems before the war ($\chi^2(1) = 1.66$, $p = .20$), the number of negative life events ($t(169) = -.60$, $p = .55$), and adversities during childhood ($t(160) = .27$, $p = .79$). There were, however, significant differences in age ($t(127.64) = -2.55$, $p < .05$) and education ($t(145.09) = -1.90$, $p < .05$), with DVs being slightly higher in age ($M = 69.65$, $SD = 6.14$) and education ($M = 12.48$, $SD = 2.78$) compared to the n-DVs ($M = 67.40$, $SD = 4.34$; $M = 11.85$, $SD = 1.31$, respectively). Therefore, we controlled for age and education in the analyses.

Measures

PTSS

PTSS was assessed at T1 and T2 via the PTSD Inventory (PTSD-I; Solomon et al., 1993), a well-validated, 17-item, self-report questionnaire. The items on the PTSD-I correspond to the DSM-IV-TR diagnosis for PTSD (American Psychiatric Association, 2000). Respondents rated symptoms experienced in the previous month on a scale ranging from 0 (not at all) to 4 (almost always). The number of positively endorsed symptoms was calculated by the items answered as 3 (*often*) or 4 (*almost always*), as these responses best capture the criteria of persistent PTSD as they are listed in the DSM–IV–TR (American Psychiatric Association, 2000). This was the most recent edition of the DSM to which the PTSD-I could be adequately adapted and used comparatively with criteria from the time that the study was initiated (Solomon et al., 1993; Solomon & Horesh, 2007). The PTSD-I has yielded high psychometric properties and convergent validity.

Depression and anxiety symptoms

Depression and Anxiety Symptoms were assessed at T1 and T2 using the Brief Symptom Inventory-53 (BSI-53; Derogatis & Melisaratos, 1983), which has been commonly used in geriatric studies and has shown high psychometric reliability (Therrien & Hunsley, 2012). Respondents were asked to indicate how frequently they experienced each symptom over the last two weeks on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*).

PTG

PTG was assessed only at T2, using the Post Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). For each of the 21 statements in the questionnaire, participants were asked to rate the extent to which the indicated change occurred in their lives as a result of their participation in the war. The total score was computed according to five subscales: relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. Each item was scored on a 4-point scale ranging between 1(*I didn't experience this change at all*) and 4 (*I experienced this change to a very great degree*). The PTGI has shown good internal consistency, construct, convergent and discriminant validities (Tedeschi & Calhoun, 1996).

Data analysis

To compare the groups in PTSS, depression and anxiety symptoms a series of mixed analyses of variance (MANCOVAs) was conducted. Study group served as

the between group variable, time was the within group variable and age and education were control variables. To compare the groups in PTG total score and subscales while controlling for age and education we conducted a series of one way analyses of covariance (ANCOVAs), wherein the study groups were the independent variable, age and education were controlled variables, ad PTG scores were the dependent variables.

Results

Results from the MANCOVAs comparing the groups in PTSS and the MANCOVAs comparing the groups in depression and anxiety over time while controlling for age and education are presented in Table 1. Analyses revealed no differences between the groups except for scores on avoidance, which showed significant effects for the time X group interaction. Probing the interaction revealed that whereas there was a significant effect for time among n-DVs, so that the avoidance symptoms worsened (i.e., increased) from T1 to T2 ($F(1,72) = 6.88$, $p < .05$), this effect among the DVs ($F(1,72) = .63$, $p = .43$) was non-significant. This suggests that upon entering old age, while n-DVs may evince increments in avoidance symptoms, such deterioration is not evident among DVs, which implies a relative resilience in the latter. The analyses also revealed significant differences between the groups in anxiety and depressive symptoms, so that the DVs reported lower anxiety and depression symptoms compared to n-DVs, once again suggesting a relative resilience in these domains.

Results from the ANCOVAs comparing the groups in PTG levels while controlling for age and education are presented in Table 2. The DVs scored significantly higher than n-DVs on PTG total scores and all PTG subscales except for spiritual change. These findings suggest that aging DVs may experience greater personal growth than n-DVs.

Table 2. Means, SDs and univariate F results of posttraumatic growth among DVs and n-DVs.

	DVs (n = 73)		n-DVs (n = 73)			
Variable	M	SD	M	SD	F(1, 142)	η^2_p
PTG – total score	43.83	15.91	36.81	13.47	10.83**	.07
PTG – relating to others	13.39	5.23	11.55	4.50	7.15**	.05
PTG – new possibilities	10.03	4.00	8.40	3.51	9.03**	.06
PTG – personal strength	9.35	3.98	7.55	3.57	10.37**	.07
PTG – spiritual change	3.11	1.50	3.15	1.60	.02	.00
PTG – appreciation of life	7.95	3.13	6.17	2.94	14.02***	.09

* p < 0.05 **p < 0.01 ***p < 0.001

Discussion

The present study examined whether decorated veterans (DVs) evince greater posttraumatic resilience (i.e., lower PTSS, anxiety and depression) and higher posttraumatic growth (i.e., PTG) than non-decorated veterans (n-DVs) in mid-adulthood and upon entering old age. As hypothesized, the results revealed that four decades after the war, aging DVs reported lower psychopathology and higher PTG than n-DVs. Interestingly, whereas vis-à-vis anxiety and depression, the two groups differed regardless of the progression of time, for PTSS the picture was more complecated. Regarding the avoidance symptoms of PTSD, the DVs' relative resilience became apparent only at the second measurement (i.e., during the transition to old age). Specifically, while the DVs' avoidance symptoms remained stable between the two assessment points, the n-DVs evinced an increase in avoidance symptoms as they entered older age. Nevertheless, for the remaining symptom

Table 1. Means, SDs and univariate F results of PTSS and psychiatric symptomatology among DVs and n-DVs.

	DVs (n = 73)		n-DVs (n = 73)		Group		Time		Group*Time	
Variable	M	SD	M	SD	F(1, 142)	η^2_p	F(1, 142)	η^2_p	F(1, 142)	η^2_p
PTSS total Score										
T1	1.31	2.17	1.60	2.63	1.66	.01	.33	.00	1.97	.01
T2	1.86	2.75	2.88	4.15						
Intrusion										
T1	.36	.71	.40	.81	.40	.01	.02	.00	.41	.00
T2	.61	1.15	.79	1.54						
Avoidance										
T1	.42	.86	.34	.86	.56	.00	1.12	.01	4.09*	.03
T2	.52	.84	.85	1.48						
Hyperarousal										
T1	.53	1.25	.86	1.52	2.85	.02	.22	.00	.66	.01
T2	.73	1.26	1.23	1.68						
Depression										
T1	.17	.30	.27	.40	4.50*	.03	.97	.00	1.87	.01
T2	.31	.45	.57	.88						
Anxiety										
T1	.30	.33	.51	.61	4.27*	.03	1.11	.00	.00	.00
T2	.37	.57	.61	.95						

* p < 0.05

clusters, as well as for the total degree of PTSS, no significant group differences were found.

As noted above, any causal explanation of the findings would be premature at this point and highly speculative, and thus beyond the scope of the current investigation. Nevertheless, such explanatory routes are worth contemplating as a springboard for future research. Two major interpenetrating explanatory routes may contribute to the understanding of the results above: personal and environmental. From a personal perspective, it has been found that DVs may possess higher leadership qualities than n-DVs as well as better ratings of their preformance under stress (Gal, 1986; Wansink et al., 2008). It is plausible that such personal strengths may not only have allowed DVs to fare better on the battlefield but also to more successfully master the transition into older age. Indeed, facing the psychosocial challenges of aging (Larzelere et al., 2011), the kind of amplified agency to provide for oneself and others that characterizes courageous individuals (Dunlop & Walker, 2013; Walker & Frimer, 2007) may prove highly beneficial in maintaining psychological stability and resilience. While this explanation cannot be negated and doubtlessly warrants further investigation, it is noteworthy that the awarding of decorations is also a highly political practice (Bertha, 2000; Gavriely-Nuri, 2009; Walsh, 2014) and that its capacity to discern the courageous from the less courageous must be approached with caution, as many of the DVs themselves assert (Stein & Solomon, Under review). Therefore, it stands to reason that it may be the decorations and the public veneration that accompanies their awarding that hold some psychological benefits.

Studies indicate that previous life stress (Seery, Holman, & Silver, 2010), or otherwise the successful overcoming of previous adversity (Block & Zautra, 1981), may have an inoculating effect in relation to later stress. Decorations are the highest societal acknowledgement that one has indeed triumphed and excelled on the battlefield and in this manner may facilitate such an inoculating effect. Specifically, such an environmental perspective, draws on the notion that the aftermath of trauma depends greatly on the meaning of the event during (Bovin & Marx, 2011), as well as after it occurs (Larner & Blow, 2011; Park, 2010). Thus, the beneficial attributes of decorations may lie in their capacity to frame the events of the war for their recipients. It may be that due to the manner in which receiving a decoration frames DVs' war experiences, DVs have developed greater endurance to subsequent stress. Conversely, the 'Hero' identity inculcated by the awarding of medals of valor corresponds with several of the PTGI subscales (i.e., relating to others, new possibilities, personal strength and appreciation of life; Tedeschi & Calhoun, 1996), and may therefore account for the DVs' relatively higher rates of PTG compared to the n-DVs in these domains. As a word of precaution, however, it is important to acknowledge the possibility that social desirability and social expectations may have given rise to a certain bias that potentially affected responses. Specifically, as society may expect more growth perceptions from DVs than n-DVs, it may be that the higher rate of PTG among DVs than among the n-DVs reflects social desirability rather than actual growth.

Further supporting an environmental perspective, it may be argued that since the Israeli society holds DVs in high regard, additional benefits may have contributed to their relatively more resilient trajectory. In particular, DVs' public acknowledgement was related to preferential treatment in important areas such education and professional career advancements (Ben-Tzedef, 2017). Therefore, DVs may be more readily prone to realizing and pursuing new possibilities after the war and this is in line with findings indicating that the acknowledgement of such possibilities is associated with post-adversity growth (Roepke & Seligman, 2015). In line with the conservation of resources (COR) theory (Hobfoll, 1989), it is likely that across their lifespan, DVs were able to accumulate more resources (e.g., social status, financial gains), which could facilitate better coping with the aftermath of the war as well as with age-related losses such as declining physical health or restricted mobility. Previous research among non-traumatized individuals has indeed shown that a higher socioeconomic status is associated with successful aging in the domains of mental, physical and social functioning (Jang, Choi, & Kim, 2009).

Moreover, older age is associated with specific developmental tasks that entail reminiscence and life review processes (Erikson & Erikson, 1998). Among trauma survivors in general and combat veterans in particular, such processes may be associated with the reactivation or late onset of traumatic memories and the manifestation of PTSD symptomatology (Davison et al., 2016, 2006). As DVs may, to some extent, be cognizant of the various psychological and societal gains that resulted from their experience in the war and its public acknowledgement, they may not only frame the traumatic experience as less devastating but also more readily construe them as opportunities for growth. More positive appraisals of a traumatic experience or its implications have previously been associated with better posttraumatic functioning (Moore, Varra, Michael, & Simpson, 2010) and have been viewed as the basis for cultivating PTG among combat veterans (Tedeschi & McNally, 2011).

Nevertheless, previous research has also led to the notion that stress-related growth and PTG may involve illusory views of reality that may have both positive and negative ramifications for recovery (Bjorck & Byron, 2014; Zoellner & Maercker, 2006). It may be that DVs' inclination to paint reality in more positive colors may relate to such illusory effects associated with their decorations. Future studies should, therefore, look into both favorable and unfavorable correlates of DVs' PTG.

Study limitations

The study has several limitations that must be acknowledged. First, the investigation relied on self-report measures that could be subject to report biases. Second, participants were not assessed before or immediately after the war and no account was taken of positive or negative life events across the lifespan, thus giving rise to potential artifacts and precluding any causal inferences. Conversely, we did not explicitly assess the explanatory mechanisms discussed above, such as societal factors or the retrospective evaluation of the war experience, thus placing further constraints on any causal inferences. Future studies should include measures that allow for an empirical clarification of the resilience- and growth-related mechanisms among decorated veterans. Furthermore, as there are likely meaning-making processes that account for both resilience and pathology (Larner & Blow, 2011), it is pertinent to evaluate what exactly is it in the DVs' and n-DVs' interpretation of their war and post-war experiences that was most significant in shaping their psychological reactions Qualitative studies may be most revealing in this respect.

Notwithstanding the limitations, the present investigation is a pioneering effort to examine epidemiological differences in posttraumatic reactions, pathogenic and salutogenic among DVs and thus underscore the potentially positive psychological ramifications of military medals of valor. The results of this study show that DVs do not only evince relatively higher resilience to posttraumatic sequelae in older age but also report higher PTG compared to n-DVs. Indeed, the evidence suggests that the effects become particularly pronounced later in life, when the veterans are ostensibly faced with the challenges of older age. The present study should serve as a springboard for future investigations among DVs. Such studies should strive towards corroborating or refuting the present findings but also, and more importantly, seek to identify causal mechanisms that may empirically explain such group differences and shed light on the positive factors underlying such mechanisms.

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