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Combat exposure and posttraumatic stress have the potential to affect distress in response to cancer, a common late-life stressor. Models of posttraumatic growth suggest that distress can produce varying avenues for resilience. A primarily male, veteran sample completed interviews regarding how combat exposure and posttraumatic stress relate to distress and growth in cancer survivors. While combat alone did not predict greater distress, combat veterans with current combat-related posttraumatic stress symptoms reported the greatest distress following cancer. These same veterans showed cancer-related growth. This is the first large-scale study examining the relationships among combat, posttraumatic stress, and emotional health following cancer.

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What is the lifespan developmental impact of combat trauma? Does early life exposure to combat increase the risk of distress when confronted with later life-threatening illness, or does survival following such exposure convey resilience? Combat exposure is associated with the risk of developing posttraumatic stress disorder (PTSD) (Aldwin, Levenson, & Spiro, 1994; Fontana & Rosenheck, 1998; Lee, Vaillant, Torrey, & Elder, 1995). At the same time, combat exposure may be associated with resilience and stress-related growth, conveying successful coping in the face of stressful life events (Aldwin et al., 1994; Fontana & Rosenheck, 1998; Jennings, Aldwin, Levenson, Spiro, & Mroczek, 2006).

RESILIENCE ACROSS THE LIFE COURSE

Resilience is a term with different uses. Here we refer to *resilience* as a process or pattern of adaptation in the context of threats to individual life or function (Masten & Wright, 2010). Although there are multiple ways to conceptualize the pathways of resilience (Bonanno, 2004; Masten & Obradovic, 2008), three pathways are especially relevant to lifespan development (Masten & Wright, 2010): Resistance, a tendency to display a steady state following a stress or with no marked increase in distress; recovery, initial distress followed by positive adaptation; and transformation, in which adaptive functioning improves after trauma through transformational meaning making or posttraumatic growth (Tedeschi, Park, & Calhoun, 1998). Dynamic processes of change may occur between these trajectories (Aldwin, Levenson, & Kelly, 2009). For example, life course theorists recognize the potential of turning points (Elder & Shanahan, 2006), in the forms of positive social structures and idiosyncratic events, as opportunities for individuals on trajectories of vulnerability after initial trauma to experience stress-related growth in response to subsequent events. This growth may then steer such individuals onto pathways of more resilience (McAdams & Bowman, 2001). Combat veterans may be an ideal population in which to examine these trajectories in the context of life-threatening trauma (Clipp & Elder, 1996). Further, few studies have examined the impact of combat and PTSD on later-life stressors.

CANCER AS A LATER-LIFE STRESSOR

The lifetime risk of being diagnosed with cancer is nearly 1 in 2 (40.35%) for every man and woman born today (Centers for Disease Control and Prevention, 2011). For many, cancer is arguably the most feared disease, causing significant distress for many and trauma for some (Cordova et al., 1995; Institute of Medicine, 2008). Due to improvements in the detection and treatment of cancer,

survival rates are increasing. Indeed, death rates for the four most common cancers (prostate, breast, lung, and colorectal), as well as for all cancers combined, continue to decline. There are now more than 11 million cancer survivors in the United States, most older than age 60 (Institute of Medicine, 2005).

Veterans make up a significant portion of those currently living with a cancer diagnosis and those recovering from cancer and related treatments. There are more than a half-million veterans receiving care in the Veterans Healthcare System who are cancer survivors (Moye, 2010; Moye, Schuster, Latini, & Naik, 2010). This subpopulation of cancer survivors is unique in that they are predominantly male (i.e., 97% compared to 45% in the general population) and significantly older than those in the general population (i.e., 84% older than age 60 compared to 70% older than age 60 in the general population; Moye, 2010).

CANCER SURVIVORSHIP IN VETERANS: DISTRESS AND RECOVERY

Psychological distress is common following cancer diagnosis and treatment. Although survivorship is increasing, individuals diagnosed with cancer must navigate the processes of recovery. Although fewer than 10% meet criteria for a PTSD diagnosis, up to 67% of patients report symptoms of PTSD in the first year following cancer treatment (Kangas, Henry, & Bryant, 2002; Palmer, Kagee, Coyne, & DeMichele, 2004). Worry is also common, with 30% to 40% of cancer survivors reporting ongoing fears of recurrence and of diagnostic tests (Deimling, Bowman, Sterns, Wagner, & Kahana, 2006). In addition, up to 43% of cancer survivors report depressive symptoms and 26% meet criteria for depression (Mehnert & Koch, 2007).

Veterans are at risk for exposure to trauma through combat. Rates of a history of trauma in an older adult (65+) veteran population are estimated at approximately 40% (Rauch, Morales, Zubritsky, Knott, & Oslin, 2006). Previous exposure to trauma has been associated with greater risk for PTSD following a subsequent trauma (Breslau, Chilcoat, Kessler, & Davis, 1999). Of those older adult veterans reporting a trauma history, 44% reported at least one core symptom of PTSD (Rauch et al., 2006). These data suggest that exposure to early life trauma, such as combat, may increase psychological distress following a later-life stressor, such as cancer. It is also possible that the combination of early trauma and symptoms of PTSD leads to more psychological distress following a later-life stressor.

Successful navigation of such psychological distress may play a significant role in the trajectory of cancer treatment and recovery. Survivors must negotiate the psychological and social complexities of recovering from cancer as they remain alert to recurrence, second cancers, and potential treatment failures (Institute of Medicine, 2008). Loss within the context of disease and chronic illness has been thought to be one pathway to positive psychological recovery and growth (Aldwin

et al., 2009). Thus, negotiating survivorship is a time that both could lead to increased distress while also offering opportunity for growth.

STRESS-RELATED GROWTH AFTER CANCER

Reports of stress-related growth following cancer are common; studies have reported from 60% to 90% of cancer patients report experiencing at least some positive life changes as a result of their cancer (Cordova, Cunningham, Carlson, & Andrykowski, 2001; Park, Edmondson, Fenster, & Blank, 2008; Stanton et al., 2000). This growth and positive change can occur in many life domains, including interpersonal relationships, life philosophies, goals, values, spirituality, and lifestyle (Aldwin et al., 2009; Tomich & Helgeson, 2002). For example, many cancer survivors report being closer to their spouses, families, and friends than they were prior to their cancer (Thornton & Perez, 2006). Cancer survivors also report a renewed appreciation for life, meaning, and purpose (Thornton & Perez, 2006).

A model of stress-related growth, based in part on cancer survivors, identifies five potential areas in which people grow from adversity: relationships to others, development of new possibilities, newfound personal or inner strength, changes in spirituality, and greater appreciation of life (Calhoun & Tedeschi, 2006). Further, the experience of stress-related growth decreases distress in cancer survivors (Bower et al., 2005; Morrill et al., 2008). Lower distress following growth might be relevant for individuals who have experienced earlier life stress along with previous growth. Individuals who have navigated an experience like combat and have not developed combat-related PTSD may be at lower risk for later-life distress due to previous positive growth. Thus, combat exposed individuals might be "resistant" to distress in the presence of a later-life stressor, cancer, and thus not have the opportunity for further stress-related growth.

ADAPTATION TO CANCER IN VETERANS

In our previous study of adaptation to cancer in veterans, we similarly found that a cancer diagnosis was associated with distress and stress-related growth (Moye, 2010). To investigate this phenomenon further, we completed a series of focus groups with veterans after cancer treatment that examined the experience of anxiety as well as meaning making. The life-long impact of military experience was present in all the major themes extracted (Hilgeman et al., 2011). Ideas about control and the predetermined nature of events were clearly influenced by military service and were often discussed independent of any religious beliefs about destination or fate. Veterans also voiced comfort and strength in receiving care

side-by-side other veterans. Shared hardships and worldviews developed through this affiliation contributed to coping success among veterans sampled.

THIS STUDY

This study examined the phenomena of cancer-related distress and stress-related growth in veterans with cancer. We were particularly interested in the influence of combat and combat-related PTSD on trajectories of resistance, distress, or transformation in response to the cancer stressor. To examine these differences, we divided the sample into veterans with and without combat experience. Then, we further divided the sample as follows: Group 1, Combat are veterans who experienced combat but did not have current PTSD symptoms related to combat; Group 2, Combat-PTSD were veterans who experienced combat and reported current PTSD symptoms related to combat; Group 3, Noncombat were veterans who participated in military service but were not in a combat area. These veterans served as a military control due to their military training and service without combat exposure. We examined the following hypotheses.

Hypothesis 1: Combat exposure will not, in itself, be related to significant increases in cancer-related distress or changes in benefit finding.

Hypothesis 2: Combat veterans will report the lowest levels of current cancer related distress—that is, they will be "resistant" to distress. By contrast, combat-PTSD veterans will report the most distress, that is, will be most affected by their cancer experience. Noncombat veterans will score in the intermediate range.

Hypothesis 3: Combat-PTSD veterans will have the most opportunity for growth and will report the highest levels of cancer related posttraumatic growth. By contrast, "resistant" combat veterans will report the least growth. The noncombat veterans will score in the intermediate range.

METHOD

Sample

A total of 133 veterans, mostly male, ($n = 130$ men, 3 women) aged 50 to 88 ($M = 65.47 \pm 8.67$) with a diagnosis of cancer participated. Of these veterans, 5% served during World War II era, 9% served during the Korean era, 64% served during the Vietnam era, and 22% served during peace time. Demographic data are presented in Table 1. Because this article focuses on later-life reaction to cancer,

TABLE 1
Demographics

		Combat	
	Noncombat	*PTSD*	*No PTSD*
n	72	32	29
Age ($M \pm SD$ years)	64.88 (8.73)[a]	63.53 (7.52)	69.07 (8.94)
Racial category (%)			
American Indian/Alaska Native	1.4	0.0	0.0
Asian	0.0	0.0	0.0
Black or African American	19.7	15.6	11.1
White	78.9	81.3	85.2
More than one race	0.0	3.1	3.7
Education			
Grade school	4.2	3.2	3.4
Some high school	9.7	16.1	24.1
High school graduate	29.2	38.7	24.1
College	45.8	35.5	37.9
Postgraduate	11.1	6.5	10.3

[a] $F(2, 130) = 3.61; p < 0.05$.

we excluded data from four veterans who completed our interviews but received cancer diagnoses before age 50.

Recruitment

Participants were identified via the tumor registries from VA Medical Centers in Boston, MA, and Houston, TX. To be eligible for inclusion in the study, participants must have received a new (not recurrent) diagnosis of oral-digestive cancers one of the following types: oral (head and neck), esophageal, gastric (GI), or colorectal (CRC), and received treatment beyond watchful waiting. Diagnosis date was determined based on the date of the first clinically confirmed pathology for carcinoma. Additional inclusion criteria were age 18 years or older, ability to read and speak English, and no evidence of active psychotic spectrum disorder or dementia (per chart review) that would preclude the ability to consent and participate in the interview.

Interviews

Data presented in the article are part of a larger study on cancer survivorship. Participants completed a mixed-method structured individual interview at 6, 12, and 18 months post-diagnosis with a trained member of the research team. This article reports on the 133 who have completed the 6-month interview, 76 of whom

have completed the 12-month interview to date. The survey consisted of quantitative measures and open-ended questions. The interviewer read each question to the participant and recorded the participant's responses. For items with a Likert-type scale response format, participants were given a copy of the scale to reference. Interviews were conducted in person at a location convenient for the participant. Participants were compensated $30 for their participation in each of the three interviews of the study. The Institutional Review Boards of the VA Boston Healthcare System and the Michael E. DeBakey Veterans Affairs Medical Center approved this study.

Measures

Demographics. Sociodemographic information including age, gender, racial/ethnic identity, and level of education were collected by participant self-report during the interview.

Cancer-related information. Information about the cancer diagnosis, including cancer type/organ site and stage, was obtained from the participant's medical records. Type of treatment (surgery, chemotherapy, and/or radiation) was obtained via participant self-report.

Combat. Participants were asked whether they had been exposed to combat during their military experience. In our clinical experience older veterans may underestimate their combat exposure. Therefore, veterans were marked as positive if they answered *yes* to the following question: When you were in the military, were you ever in a combat area? (probe: by *combat* I mean near firearms, shelling, mortars).

Combat PTSD symptoms. If the participant reported combat experience, the Primary Care PTSD Screen (Prins et al., 2003) was used to screen for military-related PTSD symptoms. This 4-item measure uses a yes/no response format to assess the occurrence of nightmares or intrusive thoughts about the military, avoidance of thoughts or situations that are reminders of the military, feeling on guard or easily startled, and feeling numb or detached from others in the past month. For the purposes of this article, we divided the combat exposed group into two groups: those with no current combat PTSD symptoms and those with any current combat PTSD symptoms.

Cancer PTSD symptoms. The Posttraumatic Check List-Civilian version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993) was used to assess cancer-related PTSD symptoms (CA-PCL). This 17-item questionnaire assesses symptoms of PTSD resulting from a traumatic event and has been

previously adapted to assess PTSD symptoms in breast cancer survivors (Andrykowski, Cordova, Studts, & Miller, 1998; Cordova, Studts, Hann, Jacobsen, & Andrykowski, 2000). Participants indicated how much they have been bothered by each symptom over the past 4 weeks using a 5-point Likert-type scale ranging from 1 (*not at all*) to 5 (*extremely*). To orient respondents to cancer as the traumatic event, each item was amended to refer to cancer (e.g., "Repeated, disturbing memories, thoughts, or images of cancer, your diagnosis or treatment?"). Probable PTSD diagnosis was identified using a cutoff score of 50 (Andrykowski et al., 1998). This method has been shown to have a diagnostic sensitivity and specificity of .60 and .99 in a sample of breast cancer survivors and .20 and .95 in a sample of cancer patients who had undergone bone marrow transplants (Andrykowski et al., 1998; Smith, Redd, DuHamel, Vickberg, & Ricketts, 1999).

Depression. The Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) was used to measure current depressive symptoms in the past two weeks. This 9-item self-report scale is based on the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text. rev.; *DSM-IV*; American Psychiatric Association, 2000) diagnostic criteria for major depressive disorder. It was designed for use in primary care settings, to make tentative depression diagnoses, monitor change over time, and evaluate functional consequences of depressive symptoms. Participants rated items on a 0 to 3 scale with 0 (*not at all*) and 3 (*nearly every day*). A range of 10 to 14 was used to indicate minor depression, and a cut off score of 15 or greater was used to indicate major depression.

Posttraumatic growth. The Benefit Finding Scale (BFS) (Tomich & Helgeson, 2004) was used to assess cancer-related growth. The BFS was developed for and validated in samples of medical populations, specifically individuals with cancer. The 22-item scale contains six subscales based on factor analysis: acceptance (e.g., I adjust to things I cannot change), worldview (e.g., I believe everyone has a purpose in life; I have faith in God or a Higher Power), family relations (e.g., my family is close), social relations (e.g., I realize who my real friends are), personal control (e.g., I am productive), and health behaviors (e.g., I eat a healthy diet). Previous researchers have also treated the scale as unidimensional (alpha = .95) (Tomich & Helgeson, 2004). The BFS was chosen over other measures of benefit finding because of its inclusion of domains of positive change that may be specific to medical populations (i.e., health behaviors). The BFS also distinguishes between benefit finding with regard to family relationships and more general social relationships. Responses were modified for the study to assess positive and negative change: a lot less (0), less since cancer (1), the same (2), more since cancer (3), a lot more (4). Internal consistency reliability was high (0.91–0.96) in samples of women with breast cancer and men with prostate cancer (Weaver, Llabre, Lechner, Penedo, & Antoni, 2008).

Participants completed qualitative interview items at 6 and 12 months. These open-ended questions assessing coping with cancer (e.g., previous experiences that helped prepare for or cope with cancer?) and questions related to meaning making (e.g., "Why do you think you got cancer?" "Have you ever searched for the meaning, significance, or purpose of cancer in your life?" "Has cancer changed your view of life, or its meaning for you?").

Quantitative data analyses. Student's t-test comparing those with and without combat was used to test Hypothesis 1. One-way multivariate analyses of covariance (MANCOVA) were performed to examine Hypotheses 2 and 3. Tukey's studentized range statistic was used to assess between group differences in post-hoc analyses when variances were equal; Tamhane's T2 was used when variances were unequal across groups. Because age differed between the groups, all analyses controlled for age. We did not control for race and education as these did not differ among the groups.

Qualitative data analyses. Responses from 76 participants who had completed the 6- and 12-month interviews were subjected to qualitative analyses. As described above, at the 6-month and the 12-month interview participants were asked a series of open-ended questions pertaining to their cancer diagnosis. To uncover the meaning making processes related to our quantitative data, qualitative comments were coded using an explicit theoretical lens (Hanson, Creswell, Plano Clark, Petska, & Creswell, 2005) using the benefit finding scale theory (Tomich & Helgeson, 2004). First, qualitative comments were transcribed by the interviewers after the interview and entered into a database. Prior to examination of the quantitative findings, two coders (AJ & LH) worked independently to identify statements representing six themes from the Benefit Finding Scale: acceptance, worldview, family relations, social relations, personal control, health behaviors. After independently coding selected responses to the interview data, discrepancies were identified by coders and resolved through discussion. Data were then decoded to reveal group status and representative responses were selected to illustrate meaning making exemplars relative to quantitative results.

RESULTS

Early Combat Exposure and Subsequent Cancer-Related Distress

Overall, 12.0% of the sample had scores on the PHQ suggesting minor depression, and 13.5% had scores suggesting major depression at 6 months postdiagnosis. Nine percent reported cancer-related PTSD on the CA-PCL. Additional descriptive data appear in Table 2. Depression did not differ between those with and

TABLE 2
Descriptive Statistics of Measures ($N = 133$)

Variable	*# Items*	*Observed Range*	*M*	*SD*
PTSD, CA-PCL	17	17–76	29.17	13.16
Depression, PHQ-9	9	0–27	6.49	6.67
Benefit Finding Scale				
Total	22	21–87	47.01	8.35
Acceptance	3	3–12	6.51	1.45
Worldview	4	8–16	9.02	1.93
Family relations	2	2–8	4.75	1.23
Social relations	3	4–12	6.85	1.53
Personal control	7	3–28	14.03	3.13
Health behaviors	3	0–12	6.08	1.84

Note. Depression scores from Patient Health Questionnaire (PHQ-9), Cancer-related posttraumatic stress disorder score from the modified PTSD Checklist (PTSD, CA-PCL), Benefit Finding Scale (BFS).

without combat ($M \pm SD = 7.02 \pm 7.23$ vs. 6.03 ± 6.15; $t = -.86$, $p = .34$). CA-PCL scores indicated that cancer-related PTSD symptoms were significantly higher in those who had experienced combat ($M = 39.69 \pm 15.54$ vs. 27.00 ± 10.32; $t = -2.09$, $p = .04$).

PTSD and Cancer-Related Distress in Veterans

A one-way MANCOVA indicated that depression and cancer-related PTSD symptoms were highest in combat-PTSD veterans, and lowest in combat veterans, as shown in Table 3. Mean levels of cancer-related PTSD and depression were highest in the combat-PTSD group, lowest in the combat group, and intermediate in the noncombat group, see Table 3 for mean values. In post-hoc analyses, combat-PTSD veterans were more distressed as indicated by scores on the CA-PCL, p's < 0.001 and PHQ, p's < 0.002, than combat and noncombat veterans. Combat veterans were not statistically significantly different from non-combat veterans, p's > 0.12.

In qualitative interviews at 12 months postdiagnosis ($N = 76$), combat-PTSD veterans described their distress in the following ways. "I had prostate cancer first. I thought I was in good shape. It was a blow when I was diagnosed with this one. I thought I'd taken good care of my body. It came as quite a shock." Another veteran stated, "I'm a little depressed. I'm 60, running out of time." When asked about views of life and death another combat veteran with PTSD stated, "[life] is unfair" and "[death makes me] angry." A different combat-PTSD veteran stated that cancer made death "more frightening."

TABLE 3
Distress in Response to Cancer in Veterans ($N = 133$)

Dependent	*Group*	*M*	*SD*	*F (2,130)*	*p*	η^2
PTSD, CA-PCL	Noncombat	27.00	10.32	11.21	.001	.15
	Combat	23.59	8.32			
	Combat-PTSD	37.66[a]	15.85			
Depression, PHQ-9	Noncombat	6.03	6.15	7.45	.001	.10
	Combat	3.21	4.78			
	Combat-PTSD	9.97[a]	7.17			

Note. Depression scores from Patient Health Questionnaire (PHQ-9), Cancer-related PTSD score from the modified PTSD Checklist (PTSD, CA-PCL).

[a]Post-hoc analysis combat-PTSD > noncombat & combat, $p < 0.05$.

In contrast, combat veterans and noncombat veterans made statements suggesting positive coping. When asked what personal qualities have helped to cope with cancer one noncombat veteran stated, "I have many weaknesses, but I think one of the strengths I've always had is the ability to cope positively with difficult situations. I believe I was born with this ability." Another noncombat veteran stated, "I think my ability to accept things—positive thinking [has helped me to cope with cancer]." When asked about views of life following cancer, one combat veteran similarly stated, "Life is what you make it yourself. I enjoy life."

Whereas the combat-PTSD veterans continue to express distress, statements from combat and noncombat veterans suggest initial distress following diagnosis with a reduction in distress in the months following. For example, one combat veteran stated, "The day they told me I was upset, but not now." Another combat veteran's statement suggested that coping with stress, which he learned in combat, played a role in reduced distress: "What I saw in Vietnam made me accept this stuff for what it is. Some people would say I'm not emotional, but I just learned how to deal with it."

Cancer-Related Growth

Cancer-related growth did not vary between those with and without combat ($M \pm SD = 46.85 \pm 7.58$ vs. 47.14 ± 0.01; $t = .20$, $p = .85$). However, similar to distress, more noteworthy patterns of growth emerged when further comparing groups with and without combat PTSD.

Positive cancer-related growth was highest in combat-PTSD veterans, and lowest in combat veterans, with noncombat veterans intermediate, as shown in Table 4. A one-way MANOVA indicated these differences were statistically different for the subscales of changes in worldview and family relations and a trend for differences in acceptance. No statistical differences were observed

TABLE 4
Growth in Response to Cancer in Veterans ($N = 133$)

BFS Subscale	*Group*	*M*	*SD*	*F (2, 130)*	*p*	η^2
Acceptance	Noncombat	6.46	1.49	2.93	.06	.04
	Combat	6.10	.62			
	Combat-PTSD	6.97[b]	1.76			
Worldview	Noncombat	8.93	1.95	4.79	.01	.04
	Combat	8.35	.72			
	Combat-PTSD	9.81[b]	2.39			
Family relations	Noncombat	4.64	1.23	3.43	.04	.01
	Combat	4.48	.87			
	Combat-PTSD	5.21[a]	1.41			
Social relations	Noncombat	6.96	1.80	2.10	.13	.02
	Combat	6.34	.77			
	Combat-PTSD	7.06	1.32			
Personal control	Noncombat	14.10	3.23	.08	.93	.01
	Combat	13.83	.47			
	Combat-PTSD	14.06	4.17			
Health behaviors	Noncombat	6.24	1.89	.66	.52	.05
	Combat	5.97	.94			
	Combat-PTSD	5.81	2.29			

Note. BFS = Benefit Finding Scale.
[a]Post-hoc analysis combat-PTSD > noncombat & combat, $p < 0.05$; [b]post-hoc analysis combat-PTSD > combat, $p < 0.05$.

between groups in their ratings of growth in social relations, personal control, or healthy diet.

In post-hoc analyses, combat-PTSD veterans had significantly higher levels of growth in acceptance, $p < 0.05$, worldview, $p < 0.05$, and family relations, $p < 0.05$, when compared with combat veterans. When combat-PTSD veterans were compared with noncombat veterans, they showed higher levels of growth in family relations only, $p < 0.05$, and no significant difference in acceptance or worldview, p's > 0.12. There were no significant post-hoc differences in growth for combat and noncombat veterans, p's > 0.11.

Similar themes of acceptance, changes in worldview, and growth of family relations were evident in qualitative interviews at 12 months post-diagnosis ($N = 76$). There was evidence of acceptance as an area of growth based on combat-PTSD veterans' qualitative statements. Specific to acceptance, one veteran stated, "[I'm a] realist: accept things the way they are. I've dealt with death, you name it." More simply put, another veteran stated, "You are dealt a hand, and you must play it." Another combat-PTSD veteran stated, "You can't change what's obvious. You accept the obvious, and try to cope. I don't dwell on 'what ifs'." For some combat-PTSD veterans, acceptance was reported to be

a process used during previous life challenges. One veteran made the statement, "[Cancer] made me a lot stronger and now I'm accepting of whatever happens." This same veteran later stated that previous life challenges including family problems, serious illness, addiction, death of a loved one, and combat were important experiences that prepared him to cope with cancer because they "made me a lot stronger and I deal with life and am accepting."

Combat-PTSD veterans' statements acknowledged cancer as a turning point in their worldview. For example, one veteran stated that cancer "opened my eyes," another reflected that cancer has helped him to "mellow out," and another veteran stated "cancer gave me a new lease on life." One veteran explained his change in worldview as "having cancer teaches you a lot . . . it made me face my problems."

One combat-PTSD veteran also discussed strengthening of family relationships. This included a greater appreciation, "More importantly you can see the good in people and appreciate the people close to you and the little things in life," another suggested that support from "my kids, friends, family" grew after his cancer diagnosis, and another stated that he has a "desire to help other people." Another veteran cited faith and the strengthening of family relationships as important factors in coping with cancer. "My faith in the Lord and my belief in my family who was there for me [helped me to cope], and we are closer now and I am stronger for it." This statement acknowledges worldview (faith) and family.

Although noncombat veterans and combat veterans made statements suggestive of growth in their lives (e.g., "Having cancer has made me want to take care of things instead of putting them off," "I try to volunteer," "[I have] more compassion . . . towards people"), many noncombat and combat veterans made statements indicating that cancer had little impact or influence on growth in their life "life is still good . . . [after cancer] there was no change in my way of life, "[Life is the] same, [I] continue to enjoy life," "Cancer hasn't affected me," and "It [cancer] did not affect my way of life."

DISCUSSION

Although combat-PTSD veterans experienced more distress following their cancer diagnosis, these same veterans reported significantly greater growth following their cancer diagnosis when compared with veterans without combat-related PTSD. These data support models of meaning making and posttraumatic growth that propose that positive growth emerges out of distress, struggle (Tedeschi & Calhoun, 2004), or crisis (Larner & Blow, 2011). Thus, combat-PTSD veterans are more vulnerable to distress following a later-life stressor, cancer, while simultaneously reporting positive cancer-related growth in their lives.

What may be happening here? Meaning-making theorists suggest that a discrepancy may exist between appraised meanings given to an event and global

meaning in the domains of justice, control, predictability, coherence, benevolence, and personal vulnerability (Park, 2010). In the context of these data, an existing stressor (i.e., combat-related PTSD) and a subsequent, later-life, stressor (i.e., cancer) could elevate discrepancy causing distress. We observed this process in combat-PTSD veterans who reported the greatest cancer-related distress. Similarly, according to these theories, greater discrepancy allows for greater growth. Veterans with combat-related PTSD may engage in the struggle to develop meaning from their traumatic and often life-threatening experiences from combat. When cancer comes, it may further distress a vulnerable system but may also create an opportunity for new meaning-making processes. In this way, combat-PTSD veterans may be most amenable or have the most opportunity to experience the effects—negative and positive—of challenging life events.

Although our cross-sectional findings are limited as discussed below, our results can be viewed as consistent with meaning-making theory. In our sample, veterans who experienced combat and have combat-related PTSD experienced more distress following cancer treatment than those with combat exposure alone and noncombat veterans. Notably, combat exposure was not in itself related to depression or benefit finding after cancer; instead it was combat in the context of distress. Specifically, combat-PTSD veterans reported higher levels of depression and more cancer-specific PTSD symptoms at 6 months post-treatment, while also reporting perceptions of growth. Cancer, a life-threatening illness, may create an opportunity for renewed meaning making and growth in later life. Growth was greatest in the group of veterans that were most distressed (i.e., combat-PTSD veterans). Veterans with combat-PTSD reported greater change in worldview and strengthening of family relationships 6 months postcancer treatment when compared with their non-PTSD counterparts.

Qualitative data suggest a similar pattern and provide examples of how these veterans resolve the meaning of the event of cancer in their lives within their meaning-making systems. Although combat and noncombat veterans expressed positive coping, combat-PTSD veterans' interview responses suggested sustained distress related to their diagnosis. Combat-PTSD veterans comments also show active growth in acceptance, worldview, and family relations, whereas combat and noncombat veterans indicated low impact of cancer on their lives. Although we are not examining the process of meaning making directly, the qualitative comments provide valuable insights into the ways in which these veterans are appraising cancer, the self and social structures of their lives, and the very meaning of life and death.

Meaning-making theories suggest that if discrepancy and distress do not exist then there will be little room for growth. We observed a pattern similar to this in these data. Veterans who experience combat but do not have current combat-related PTSD symptoms experienced less discrepancy between their experience of cancer and their preexisting appraised meanings, as indicated by the

lowest reported levels of cancer-related distress. We expected that "resistant" veterans, meaning those exposed to combat but who did not develop PTSD, would experience less distress than those who had not experienced combat. Although mean levels of distress trended in this pattern, this hypothesis was not supported by the data as combat veterans without PTSD did not differ significantly from noncombat veterans in their self-reported distress. Given the small subgroup sizes we could be underpowered to observe this difference at a statistical level. Similarly, when examining measures of growth, combat veterans reported the lowest mean levels of cancer-related growth. However, combat veterans were not statistically different from noncombat veterans in their reported levels of cancer-related growth. Overall, though the mean levels show the expected pattern of distress and growth among the three groups, combat veterans differed only from combat-PTSD veterans. Combat veterans were not significantly different from noncombat veterans, which provided only limited support for combat without PTSD promoting a resistant pattern to coping with later-life stress.

Data from this study are limited by their cross-sectional nature. Certainly, to best study the trajectory of distress, growth, and well-being, we would want to use longitudinal data, preferably prior to a cancer diagnosis, and ultimately prior to combat. For example, it would be useful to know the level of combat-PTSD prior to the cancer diagnosis, as it is possible that our post-cancer measurement of combat-PTSD symptoms was contaminated by the cancer experience. The experience of cancer could have triggered a reemergence of combat stress-related symptoms for some (Davison et al., 2006). In this instance we were only able to acquire data 6- and 12-months postdiagnosis. However, a finding of vulnerability to retriggering of combat distress in the face of cancer would not in itself negate the general patterns of a subgroup of combat veterans being more vulnerable to distress and growth following cancer. Even more intriguing would be to have data pre- and immediately post-combat, and across the lifespan, including prospective measurement following a catastrophic medical illness like cancer. In the interim, the data presented in this article provide a glimpse into the encounter with cancer by veterans and contribute to models of later-life development. These issues are particularly salient for the aging generation of Vietnam veterans who were exposed to Agent Orange, a chemical primarily used during the Vietnam era, which the Department of Veterans Affairs has presumptively related to increased cancer prevalence among other chronic health problems. Thus, aging veterans face an increased risk of presumptive Agent Orange-related cancers (Moye et al., 2010; U.S. Department of Veterans Affairs, Office of Environmental Health and Hazards, 2010).

Another limitation of these data is the nature of the interview and self-report measures used to assess depression and PTSD. Although trained interviewers met with the veterans for face-to-face interviews, clinicians did not provide full diagnostic assessments. Thus, interviews are not diagnostic and should be interpreted

with caution. Future research could focus on diagnostic comorbidities and clinical significance of these findings in veterans with cancer.

As we continue to collect 12- and 18-month post-diagnosis data, we will be able to examine whether the growth that occurs at 6 months will be related to reductions in distress at 12 and 18 months out from the diagnosis. Such data would clarify the extent to which the reports of growth offer a true turning point—as conveying a resource for recovery from distress. Although further longitudinal data are needed to examine this phenomenon, for some, the experience of cancer may provide a turning point in meaning making. In addition, though this study is intended as a cancer survivor study, some in this study have had cancers that have recurred or who will die. It will be important to address the unique socioemotional needs of veterans who confront recurrence of cancer in the context of early combat experience and combat PTSD, distress and growth factors related to mortality, and potential openness to emerging reevaluation of meanings. In addition, with a larger sample, we will be able to further analyze the role of military cohort and developmental models among aging cohorts—how might adults in their fifties and sixties differ from older cohorts—those in their seventies and eighties—in making meaning of combat, cancer, and the end of life. Finally, these data are especially important in a therapeutic context. Clinicians may wish to be aware that distress is common in veterans following a diagnosis of cancer (French-Rosas, Moye, & Naik, 2011), but so too are strengths of previous coping and the experience of resistance to distress as well as transformative meaning making. These strengths and transformative opportunities provide rich pathways to support veterans during and after their cancer experience.

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