

# Personal Growth During the Experience of Advanced Cancer

## A Systematic Review

Patricia I. Moreno, MA,\* and Annette L. Stanton, PhD†

**Abstract:** Over the past decade, research has documented the positive consequences individuals attribute to the experience of traumatic, life-threatening events, including enhanced life appreciation, improved social relationships, and a deepened sense of self and meaning. Despite evidence that individuals with cancer frequently perceive growth as a result of their experience, personal growth in the context of advanced cancer has received markedly less attention. In light of the unique challenges accompanying the experience of advanced cancer, the phenomenon of perceiving positive consequences and making meaning of the cancer experience (i.e., personal growth) may be distinct in patients with life-limiting disease as compared with more commonly studied early-stage cancer survivor samples. The purpose of this article was to review studies examining personal growth in adults diagnosed with advanced cancer to encourage medical professionals to consider and respond to their concerns around meaning within palliative care. We conducted a systematic review of the PubMed and PsycINFO electronic databases for studies examining personal growth in patients with advanced cancer published between January 1960 and January 2013. Of the 197 studies reviewed, 12 quantitative studies and 10 qualitative studies met criteria for inclusion. The review revealed that many patients with advanced cancer both cite finding meaning at the end of life as important and perceive positive consequences as a result of their experience. In comparison to early-stage cancer or benign disease, advanced cancer may serve to prompt higher levels of personal growth. However, these findings are mixed and may indicate a complex, nonlinear relationship between cancer prognosis and personal growth. The most promising candidates for promoting personal growth during advanced disease include younger adult age, spirituality, and psychosocial resources (optimism, marriage, and social support from close others and health care providers). Importantly, a co-occurrence of personal growth with both distress and well-being in advanced cancer suggests that personal growth in this unique context is characterized by perceived positive consequences in the face of considerable demands, which may be reflected by greater negative and positive markers of adjustment. Understanding and awareness of personal growth in individuals with advanced cancer may facilitate health care providers' ability to consider and respond to concerns around meaning and personal growth within palliative care, given the growing literature on psychosocial interventions for patients with advanced cancer. Integration of the existing research base with intervention development is an opportunity for future research.

**Key Words:** Personal growth, benefit finding, meaning making, posttraumatic growth, cancer, neoplasms, neoplasms/psychology, terminal care/psychology, terminally ill/psychology

(*Cancer J* 2013;19: 421–430)

*Although it can be a time for grieving and accepting loss, the end of life can also be a time for looking for meaning and rethinking what's important. —National Cancer Institute Guidelines for End-of-Life Care*

Over the past decade, a growing literature documents positive consequences individuals attribute to the experience of traumatic, life-threatening events, including enhanced life appreciation, improved social relationships, and a deepened sense of self and meaning.<sup>1</sup> Evidence for this phenomenon has resulted in growing recognition by health care providers and researchers working with cancer patients and survivors that extraordinarily challenging events not only may disrupt well-being and functioning, but also can instigate growth and positive changes.

Despite evidence that individuals with cancer frequently perceive growth as a result of their experience,<sup>2</sup> personal growth in the context of advanced cancer has received markedly less attention. Characterizing personal growth in individuals with advanced cancer can inform health care providers' understanding of patients' experience and allow for concerns around meaning and personal growth to be incorporated within palliative care. The purpose of this article was to review studies examining personal growth in adult patients diagnosed with advanced cancer to encourage medical professionals to consider and respond to patients' concerns around meaning. Accordingly, we briefly summarize the broader body of research on personal growth in adults diagnosed with cancer at any stage, characterize challenges inherent to advanced cancer and their relevance for personal growth, review research on personal growth in patients with advanced cancer, and consider interventions to foster personal growth and meaning.

Many terms have been used to describe personal growth, including benefit finding, posttraumatic growth, and meaning making (for examples, see References<sup>1, 3–5</sup>). In this article, we refer to the perception of positive changes resulting from the experience of advanced cancer as personal growth. It is important to note that, in this case, personal growth lies in the eye of the individual with cancer. In the body of research described here, adults with advanced cancer typically are asked for their reports of benefit in the cancer experience (e.g., enhanced life

From the Departments of \*Psychology and †Psychology and Psychiatry/Biobehavioral Sciences, Center for Cancer Prevention and Control Research, Jonsson Comprehensive Cancer Center, University of California, Los Angeles (UCLA), Los Angeles, CA.

Conflicts of Interest and Source of Funding: P.I.M. is supported through a National Institute of General Medical Sciences Training Grant (5T32GM084903). A.L.S. was partially supported by the Breast Cancer Research Foundation. The authors declare no conflicts of interest.

Reprints: Annette L. Stanton, PhD, Department of Psychology, 1285 Franz Hall, Box 951563, 405 Hilgard Ave, UCLA, Los Angeles, CA 90095.

E-mail: astanton@ucla.edu.

Copyright © 2013 by Lippincott Williams & Wilkins

ISSN: 1528-9117

appreciation). These perceptions may or may not reflect behaviorally evident positive life changes.<sup>6</sup> However, the perception of growth and meaning are important in their own right during the process of life reflection that often occurs toward the end of life.

### Association of Personal Growth With Coping Strategies and Adjustment to Stressful Experiences

Researchers have investigated perceptions of growth in response to an array of life stressors. Helgeson and colleagues<sup>1</sup> conducted a meta-analysis of 87 cross-sectional studies examining the relationship of personal growth with psychological adjustment and coping strategies in the broader empirical literature. Overall, personal growth following a variety of stressors (e.g., bereavement, sexual assault, war, natural disaster) is associated with lower depressive symptoms and greater well-being, including positive affect, self-esteem, and life satisfaction.<sup>1</sup> The largest effect size in this meta-analysis ( $r = 0.22, P < 0.001$ ) emerged for the relationship between perceived growth and positive well-being, implying that personal growth is not simply characterized by a lack of distress, but rather reflects a co-occurrence of perceived positive consequences and well-being in the face of great challenges.

At the same time, personal growth also is associated with higher intrusive thoughts and avoidance related to the stressor ( $r = 0.18, P < 0.001$ )<sup>1</sup> as well as with objective markers of stressor severity and perceived threat, suggesting that greater objective and subjective stressor severity promotes the opportunity for personal growth and perceived benefit from an experience.<sup>7</sup> Indeed, life disruption and high event impact are considered to be necessary prerequisite conditions for personal growth.<sup>7</sup> Deliberate engagement with the processing of the event is also considered to be key in prompting personal growth, such that individuals must actively search for meaning in an event to perceive growth.<sup>2,7</sup> Accordingly, stressor-specific intrusive thoughts and avoidance are thought to be markers of cognitive processing of a stressor and reflect movement toward metabolizing the meaning of an event for one's life and future.<sup>8</sup>

Personal growth is also positively associated with specific coping strategies, including greater use of strategies to approach (e.g., positive reappraisal, active acceptance) and to avoid (e.g., denial) the stressor, which suggests that perceiving positive consequences in the face of a stressor may serve different functions across individuals.<sup>2,9</sup> Specifically, reports of personal growth may reflect actual positive changes made and/or may be self-protective. For example, evidence suggests that reports of personal growth (e.g., "cancer was the best thing that ever happened to me") may serve an avoidant, self-protective function for individuals with low psychosocial resources (e.g., low optimism and self-efficacy) and actual positive changes for those with high psychosocial resources, which may account in part for variability in findings regarding the consequences of perceived growth.<sup>6,10–12</sup>

### Personal Growth in the Cancer Context

Findings from research on various stressful experiences appear to generalize well to the cancer context. Across various types of cancer, most patients report some level of personal growth in response to their experience.<sup>2</sup> In heterogeneous cancer samples studied over time, evidence suggests that personal growth predicts a decrease in depressive symptoms, negative affect, and health-related worry, as well as an increase in health-related quality of

life and positive affect.<sup>13</sup> A review of primarily cross-sectional studies by Stanton and colleagues<sup>2</sup> yielded evidence that greater disease severity (i.e., impact) and use of engagement-oriented coping strategies also are associated with higher levels of personal growth in patients with cancer. However, findings were mixed and included several nonsignificant associations. Coupled with evidence that perceived threat and life disruption, and in particular mortality salience, are key components prompting personal growth, these findings underline the importance of a more systematic examination of the role of personal growth in the context of advanced cancer.

### Advanced Cancer and Personal Growth

Although survival rates for some cancers have increased in recent years because of advances in screening and medical treatments,<sup>14</sup> individuals with advanced cancer face unique challenges as they confront poor prognoses and arduous treatments. These include managing symptoms of pain and discomfort, lack of control, fear of dependency, loss of functional ability, fear of death and suffering, complex emotions, concern for loved ones, and communication with family and friends about illness and death. Nevertheless, adults with advanced cancer also cite the importance of making sense of the cancer experience and finding meaning in one's life and death.<sup>15</sup>

In light of the unique challenges accompanying the experience of advanced cancer, the phenomenon of personal growth may be distinct in patients with life-limiting disease as compared with more commonly studied early-stage cancer survivor samples. Unlike patients diagnosed with early-stage or curable cancer, individuals with incurable, advanced cancer will not have the opportunity to reflect on their experience and engage in meaning making or positive changes after the disease has remitted. Instead, they are faced with the task of adapting to a life-limiting disease while actively enduring ongoing challenges during the remainder of their lives. Indeed, the commonly used term "posttraumatic growth" is ill-fitted in this context, given that advanced cancer often has an uneven course, which is not circumscribed to a definitive period of time with a beginning and end, as is more likely for natural disasters or curable illnesses. Given the unique challenges associated with the experience of advanced cancer, this patient population is underrepresented in the literature, and perceived growth during the experience of advanced disease remains poorly understood. Hence, our goal was to review the pertinent existing literature.

## METHODS

### Search Strategy

We conducted a systematic review of the PubMed and PsycINFO electronic databases for studies examining personal growth in patients with advanced cancer published between January 1960 and January 2013. We limited searches to peer-reviewed studies published in English. Searches were conducted using different combinations of the following terms: *cancer, end of life, advanced disease, advanced cancer, advanced stage, terminal, incurable, benefit finding, finding benefit, finding meaning, making meaning, posttraumatic growth, post-traumatic growth, post traumatic growth, personal growth, positive change*. We also incorporated the following MeSH terms in PubMed: *neoplasms, attitude to death, terminal care/psychology, terminally ill/psychology, adaptation-psychological, neoplasms/psychology, stress-psychological, personal satisfaction* (contact first author for exact syntax used in searches). Additional studies were identified

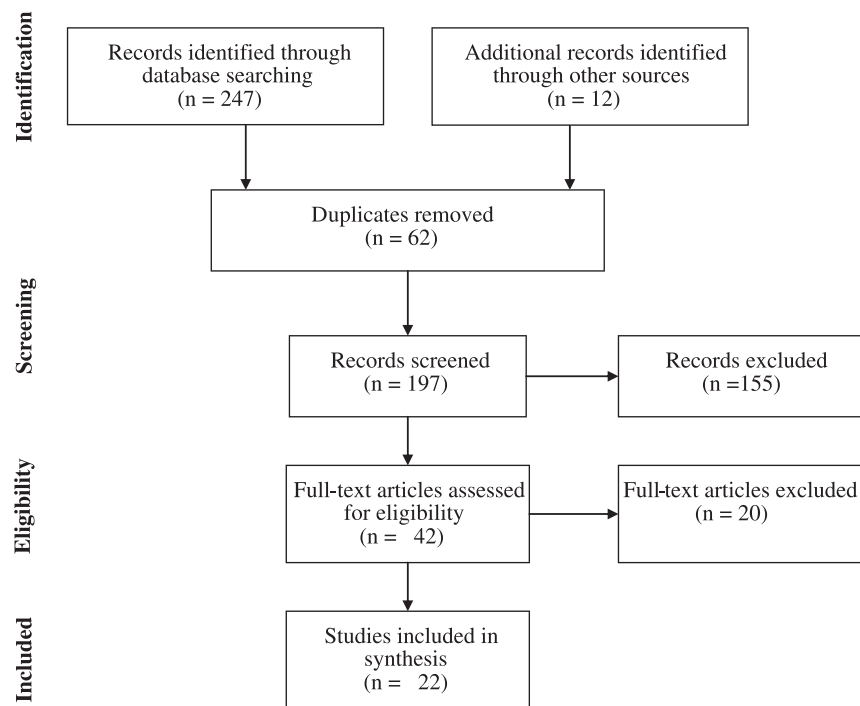


FIGURE 1. PRISMA flow diagram.

by reviewing Stanton and colleagues<sup>2</sup> review of the literature on personal growth in cancer.

**Inclusion Criteria**

Studies were included if they examined perceptions of personal growth in adults with advanced cancer. Because advanced cancer is not a standardized term, operationalization varied substantially across studies. A broad array of studies were examined, including those examining metastatic disease, incurable or terminal cancer, cancer with a poor prognosis, or cancer that has extended beyond the immediate region of the tumor to nearby lymph nodes and structures (stage III) or to distant organs of the body, such as the brain, bones, lung, and liver (stage IV). Assessments of personal growth could be either qualitative or quantitative. To be included in the review, studies that examined mixed samples of both advanced and non-advanced cancer survivors were required to include stratified analyses for those groups so that personal growth in the unique context of advanced cancer could be examined.

**RESULTS**

**Study Selection**

Figure 1 displays a PRISMA flow diagram of the literature search. Overall, 247 studies were identified through PubMed and PsycINFO in addition to 12 studies identified from Stanton and colleagues<sup>2</sup> review. After duplicates were removed, 197 records were screened, of which 155 were excluded upon examination of each article’s abstract. Full-text articles (n = 42) were assessed for eligibility, and 20 were excluded because they did not include stratified analyses of advanced cancer in mixed samples (n = 11), did not include assessment of personal growth (n = 6), or did not specify cancer stage or disease severity (n = 2),

or examination of personal growth was limited to psychometric evaluation of the Posttraumatic Growth Inventory (PTGI) (n = 1).

**Characterization of the Studies**

Table 1 summarizes the methods for the 22 studies included for systematic review. Studies were evenly divided between qualitative (n = 10) and quantitative designs (n = 12). Of the quantitative studies, 7 were cross-sectional, and 5 were longitudinal. All qualitative studies were cross-sectional. Average sample size varied across study design (cross-sectional quantitative: mean, 96.29 [SD, 52.54]; longitudinal: mean, 55.60 [SD, 81.90]; qualitative: mean, 23.70 [SD, 23.62]). Approximately half of the qualitative and quantitative cross-sectional studies included international samples outside the United States, including Finland, Taiwan, Italy, Greece, Australia, the Netherlands, and England. All longitudinal studies were conducted in the United States.

Operationalization of advanced cancer varied greatly, and an array of cancers was represented. Most studies included samples of multiple types of cancer, with the exception of 5 studies that focused exclusively on breast cancer and 3 studies that focused on cervical, ovarian, or pancreatic cancer. Sample characteristics also varied. The proportion of female participants varied from 0% to 100%, and most studies included sex-mixed samples with some overrepresentation of women. Average participant age was typically in the 50s or 60s, with several samples including a wide range of ages (overall mean, 57.05 [SD, 10.51] years) (overall sample means were included for mixed sample studies in which mean age was not provided for the advanced cancer subsample).

Measures of personal growth also varied across studies. All but 1 qualitative study used an individual interview format to assess personal growth (1 focus group format). Quantitative studies primarily (75%) used the PTGI.<sup>16</sup>

**TABLE 1. Methodological Data for Studies Included in Systematic Review**

Qualitative Studies		Sample Size (n)	% Female	Mean Age (Range), y	Type of Cancer	Stage/Illness Severity	Measures	Country
Luoma and Hakamies-Blomqvist, <sup>20</sup> 2004	Advanced cancer only	25	Not reported	Not reported	Breast cancer	Disease that progressed during or after first-line anthracycline treatment or relapsed within 12 mo after discontinuation of adjuvant anthracycline therapy	Semistructured interview	Finland
Block, <sup>35</sup> 2001	Advanced cancer only	1	0%	77	Pancreatic cancer	Metastatic disease	Interview	United States
Chio et al., <sup>34</sup> 2006	Advanced cancer only	21	63%	55 (37–76)	Colon, lung, breast, esophageal, cervical, brain, melanoma, and gastric cancer	Diagnosed as terminal by physician	Two semistructured interviews	Taiwan
Lin, <sup>30</sup> 2008	Advanced cancer only	12	Not reported	Mean not reported (37–70)	Lung, nasopharyngeal, ovarian, leukemia, colon, breast, liver, and brain cancer	Metastatic disease	Interview	United States
Miccinesi et al., <sup>21</sup> 2012	Advanced cancer only	88	63%	66 (SD, 11)	Gastrointestinal, genitourinary, liver, lymphoma, breast, melanoma, lung/pleura, sarcoma, head-neck, and prostate cancer	Deemed as incurable and terminal (76% of patients died within 18 mo of interview)	Semistructured End of Life Preferences Interview	Italy
Reb, <sup>17</sup> 2007	Advanced cancer only	20	100%	58 (42–73)	Ovarian cancer	Stage III and IV	Interview	United States
Schulman-Green et al., <sup>19</sup> 2011	Advanced cancer only	15	100%	52.3 (37–91)	Breast cancer	Metastatic disease that failed first-line treatment for metastatic disease	Semistructured interview	United States
Smith et al., <sup>31</sup> 2012	Advanced cancer only	13	100%	Not reported	Lung and ovarian cancer	Stage III and IV	Focus groups	United States
Thomas and Retsas, <sup>18</sup> 1999	Advanced cancer only	19	63%	Mean not reported (30–90)	Not reported	Diagnosed as terminal	Semistructured interview	Australia
Daiter et al., <sup>23</sup> 1988	Mixed	32 (23)	43%	27 (Range not reported)	Hodgkin disease, chronic leukemia, large cell lymphoma, lymphoblastic lymphoma, acute nonlymphocytic leukemia, acute lymphoblastic leukemia	Expected 5-y survival between 20% and 60%	Semistructured interview	United States

TABLE 1. (Continued)

Quantitative Cross-sectional Studies									
	Sample	Sample Size (n)	% Female	Mean Age (Range), y	Type of Cancer	Stage/Illness Severity	Measures	PTGI Mean (SD)	Country
Mystakidou et al., <sup>33</sup> 2007	Advanced cancer only	58	72%	60 (36-84)	Gastrointestinal, lung, urogenital, and breast cancer	Stage IV	PTGI	Mean, 52.33 (21.22)	Greece
Mystakidou et al., <sup>5</sup> 2008	Advanced cancer only	100	100%	58 (31-81)	Breast cancer	Stage IV	PTGI	Mean, 43.76 (16.21)	Greece
Rand et al., <sup>28</sup> 2012	Advanced cancer only	86	0%	59 (SD, 14)	Gastrointestinal, genitourinary, thoracic, and sarcoma cancer	Evidence of metastatic disease with no potential for curative treatment	PTGI	Mean, 75.76 (23.78)	United States
Voogt et al., <sup>32</sup> 2005	Advanced cancer only	105	55%	63 (SD, 11)	Breast, colorectal, lung, ovarian, and prostate cancer	Expected survival of <1 y	Functional Assessment of Chronic Illness Therapy Spiritual Well-being Scale (FACT-SP)		The Netherlands
Salmon et al., <sup>22</sup> 1996	Advanced cancer only	200	42%	Not reported	Lung, myeloma, esophageal, breast, colon, prostate, ovarian, non-Hodgkin lymphoma, stomach, lymphoma, bladder, rectal, and cholangiocarcinoma cancer	Diagnosed as incurable	The Life Evaluation Questionnaire		England
Smith et al., <sup>41</sup> 2008	Mixed	192 (93)	100%	51 (26-72)*	Cervical cancer	Invasive disease that has spread to surrounding tissues	PTGI	Did not report mean PTGI scores by cancer stage	United States
Lechner et al., <sup>29</sup> 2003	Mixed	83 (32)	71%	63 (34-85)*	Breast, colorectal, lung, bladder, non-Hodgkin lymphoma, chronic leukocytic leukemia, multiple myeloma, pancreatic, ovarian, esophageal, prostate, uterine, melanoma, and stomach cancer	Stage III and IV	PTGI	Mean, 75 for stage III Mean, 62.80 for stage IV	United States

(Continued on next page)

TABLE 1. (Continued)

Quantitative Longitudinal Studies									
	Sample	Sample	%	Mean Age	Type of Cancer	Stage/Illness Severity	Measures	PTGI Mean (SD)	Country
	Size (n)	Female		(Range), y					
Moore et al., <sup>4</sup> 2011	Advanced cancer only	202	27%	63 (30–94)	Hepatocellular carcinoma, other primary cancer with liver metastases, or cholangiocarcinoma	3-y survival rate of approximately 15%	PTGI	Mean, 52 at diagnosis Mean, 58 at 3- and 6-mo. follow-up	United States
Posluszny et al., <sup>24</sup> 2011	Mixed	69 (16)	100%	63 (50–74)	Cancer of the endometrium, ovaries, and vulva	Stage III and IV	PTGI	Mean, 69.00 (25.30)	United States
Tomich and Helgeson, <sup>25</sup> 2004	Mixed	364 (22)	100%	48 (Range not reported)*	Breast cancer	Stage III	Benefit Finding Scale		United States
Widows et al., <sup>27</sup> 2005	Mixed	72 (16)	74%	48 (25–66)*	Breast cancer; multiple myeloma, non-Hodgkin lymphoma, chronic myelogenous leukemia, Hodgkin disease, acute myelogenous leukemia, acute lymphoblastic leukemia	High risk for disease recurrence or progression: stage IV breast cancer, acute myelogenous leukemia, lymphoblastic leukemia, lymphomas, REL3 leukemias, AP2, and BPI chronic myelogenous leukemia, and systemic multiple myeloma	PTGI	Mean, 64.67 (21.30)	United States
Oh et al., <sup>26</sup> 2004	Mixed	102 (22)	100%	59 (Range not reported)	Breast cancer	Metastatic recurrence	PTGI and author-created meaning scale	Did not report mean PTGI score for metastatic recurrence patients	United States

For mixed samples, overall sample size is provided in addition to advanced cancer subsample size (in parentheses).

\*Overall sample statistics are provided for mixed sample studies in which mean age and/or range was not reported for the advanced cancer subsample.



## Description of Personal Growth in the Context of Advanced Cancer

Several qualitative studies focused on characterizing personal growth in patients with advanced cancer. Women with advanced ovarian cancer reported that after overcoming the initial shock of the diagnosis, they found meaning in their experience by reexamining values and priorities, focusing on the present moment, and renewing their appreciation for life and close relationships.<sup>17</sup> In addition, women reported a motivation to help other cancer survivors, particularly by participating in clinical trials. Individuals with terminal cancer also reported that, in the process of coming to terms with their diagnoses, they experienced enhanced life appreciation, improved confidence and self-esteem, improved relationships with family members, and heightened spirituality.<sup>18</sup> Experiencing the transition from curable to incurable cancer, such as when first-line treatments for metastatic disease are unsuccessful, can also be particularly trying. However, qualitative evidence suggests that the negative impact is lessened when individuals have opportunities for personal growth, enhanced social relationships, and positive reappraisal.<sup>19,20</sup> These reports indicate that patients believe finding meaning and personal growth play an important part in adapting to the diagnosis of advanced cancer.

In a qualitative study,<sup>21</sup> 40% of advanced cancer patients cited finding meaning at the end of life as very important, in addition to the desire for improved relationships to accept the end of their lives (20%), the opportunity to express to others fears of death and the dying process (57%), and the desire to take part in treatment decision making (91%). In a quantitative study,<sup>22</sup> 45% to 58% of advanced cancer patients endorsed enhanced appreciation for life, greater clarity around priorities, and positive consequences resulting from their experience. Furthermore, 1 study yielded evidence that patients' self-reported personal growth was significantly correlated with caregivers' ratings of patients' personal growth (intraclass correlation (ICC) = 0.47,  $P = 0.005$ ), suggesting that patients' perceived positive changes can be observed by close others.<sup>4</sup> Importantly, these data suggest that patients with advanced cancer both cite finding meaning at the end of life as important and perceive positive consequences as a result of their experience.

## Cancer Prognosis and Personal Growth

The association between personal growth and indicators of prognosis, such as cancer stage, is mixed. Some research suggests that more patients with less favorable prognoses perceive personal growth than those with relatively favorable prognoses (78% vs 33%,  $P < 0.01$ )<sup>23</sup> and that having advanced-stage gynecologic cancer predicts higher levels of personal growth in appreciation for life, social relationships, and spirituality 18 months after surgery in patients in comparison to patients with benign gynecologic disease or early-stage gynecologic cancer.<sup>24</sup> In addition, Tomich and Helgeson<sup>25</sup> found that women with stage III breast cancer perceived more personal growth than women with stage I or stage II cancer. The mean differences were not statistically significant, likely because of a small subsample size of stage III cancer patients ( $n = 22$ ). Null results exist, however, including studies that demonstrated no significant differences in perceived personal growth as a function of metastatic versus local breast cancer recurrence,<sup>26</sup> risk of recurrence/progression for patients undergoing bone marrow transplantation,<sup>27</sup> or oncologist-determined 6-month prognosis for men diagnosed with various metastatic cancers.<sup>28</sup>

These data suggest that a complex association may exist between personal growth and markers of cancer prognosis.

Indeed, 1 study revealed a curvilinear relationship between personal growth and cancer stage, such that patients with stage II cancer diagnoses reported higher levels of personal growth than did patients with stage I or IV cancers.<sup>29</sup> The authors proposed that stage I cancer might not be sufficiently threatening to prompt marked growth, and stage IV cancer may overwhelm an individual and prompt maladaptive coping, contributing to low personal growth, whereas stage II cancer may introduce a moderate level of uncertainty around prognosis, contributing to more personal growth. Thus, advanced cancer may prompt personal growth under particular circumstances; however, these effects are mixed and may not be linear.

## Correlates of Personal Growth

Another explanation for the mixed findings regarding the association of cancer prognosis and personal growth is that, within the group diagnosed with advanced cancer, a number of individual and contextual characteristics determine the extent of personal growth. Indeed, existing research suggests that such is the case. Factors positively associated with personal growth in qualitative studies include younger age,<sup>22</sup> more knowledge of the disease and treatment, a warm and caring attitude from health care providers, support from others, and greater ability to express emotions.<sup>30</sup> Factors positively associated with personal growth in quantitative studies include higher optimism,<sup>4</sup> younger age, and being married.<sup>5</sup> In particular, younger patients reported enhanced life appreciation as a result of their experience.<sup>5,22</sup> The experience of additional traumatic events during the past 3 years, including bereavement and physical injury, was also related to higher levels of personal growth in 1 study.<sup>4</sup> These findings indicate that circumstances that contribute to a greater impact of advanced cancer, including younger age or the experience of other stressors, may instigate a higher motivation to find meaning. In addition, psychosocial resources, such as social support, marriage, and optimism, may enhance the capacity to perceive positive consequences and expect more favorable outcomes.

Another consistent theme that emerged in the literature was the role of spirituality and religious coping in personal growth for patients with advanced cancer. Fifty-three percent of patients diagnosed with various terminal cancers considered religion to be helpful in finding meaning in their experience.<sup>21</sup> Both quantitative and qualitative evidence suggests that spiritual coping, particularly when defined by a secure partnership with and trust in a supportive higher power, is associated with more personal growth.<sup>28,30</sup> Women with advanced cancer also reported that prayer fosters reevaluation of values and priorities, a renewed appreciation for life, and enhanced gratitude for relationships.<sup>31</sup> In this qualitative study, women reported praying for others, including family and physicians, as well as thanksgiving prayers, as important. Spirituality (i.e., a sense of meaning and peace) and spiritual coping in the context of advanced cancer are associated with well-being, including higher levels of positive mood<sup>32</sup> and positive adjustment.<sup>28</sup>

## Psychological Adjustment and Personal Growth

In light of evidence suggesting that advanced cancer prompts personal growth while also being associated with greater distress across several domains, including depressive and anxiety symptoms (for example, see Reference<sup>23</sup>), we examined the association between personal growth and psychological adjustment. In advanced cancer patients, personal growth in quantitative studies is positively associated with both distress, including depressive symptoms<sup>5</sup> and cancer-specific intrusive thoughts and

avoidance,<sup>33</sup> as well as positive adjustment, including positive affect,<sup>32</sup> fighting spirit, optimism, and acceptance.<sup>28</sup>

Qualitative studies also suggest mixed findings. Patients reported that helping others and being more present in the moment were connected with less distress, deeper life appreciation, enhanced social connectedness, and improved self-evaluation.<sup>34</sup> However, younger patients with advanced cancer reported experiencing both higher appreciation for life as well as more resentment and fear related to their experience when compared with older patients.<sup>22</sup> The co-occurrence of distress and well-being provides further evidence that personal growth is characterized by perceived positive consequences in the face of considerable challenges, which may be reflected in greater negative and positive markers of adjustment.

To our knowledge, only 1 quantitative longitudinal study has examined the relationship between personal growth and psychological adjustment in patients with relatively advanced cancer. Tomich and Helgeson<sup>25</sup> examined personal growth as a predictor of psychological adjustment. Personal growth at study entry predicted a greater increase in negative affect 4 and 9 months later as well as a greater decrease in quality of life related to mental health 4 months later in women with stage III breast cancer in comparison to women with stage I or II breast cancer. The results, however, remain to be replicated and should be interpreted with caution, given the small sample size of women with stage III breast cancer in this study ( $n = 22$ , i.e., 6% of the total sample).

## DISCUSSION

Findings from this systematic review demonstrate that many, but not all, adults perceive positive consequences during the experience of advanced cancer and cite finding meaning as an important part of the process of adapting to their diagnosis. Themes of personal growth in this unique context include improved self-esteem, heightened spirituality, focus on the present moment, and, most commonly, deeper life appreciation and enhanced social relationships with close others. In comparison to early-stage cancer or benign disease, advanced cancer may serve to prompt higher levels of personal growth. However, these findings are mixed and may indicate a complex relationship between cancer prognosis and personal growth (e.g., a curvilinear relationship).

Mixed findings regarding the association of cancer prognosis and personal growth may also represent the influence of a number of individual and contextual characteristics that determine the extent of personal of growth in patients with advanced cancer. Specifically, younger age, higher spirituality, and more substantial psychosocial resources are the most promising candidates for promoting personal growth in the context of advanced cancer. Circumstances that heighten the impact of advanced cancer, including younger age or the experience of other stressors, may instigate a higher motivation to find meaning. In addition, psychosocial resources, such as social support from close others and health care providers, marriage, and optimism, may also enhance the capacity to perceive positive consequences and expect more favorable outcomes.

Personal growth in the context of advanced cancer is positively associated with both distress, including depressive symptoms and cancer-specific intrusive thoughts and avoidance, and positive adjustment, including positive affect, fighting spirit, optimism, and acceptance. In contrast, personal growth in the broader cancer context is generally associated with decreased distress (i.e., depressive symptoms, negative affect, and health-related worry) and improved well-being.<sup>13</sup> Evidence of a co-occurrence of distress and well-being in patients with advanced cancer suggests personal growth in this context is uniquely

characterized by perceived positive consequences in the face of considerable challenges to adjustment and is not defined by the absence of distress.

Overall, advanced cancer patients report both serious challenges in adapting to advanced cancer and a desire to make meaning and grow from the experience in several life domains. As such, perceived meaning in a patient's life and death is a key characteristic defining the advanced cancer experience and end-of-life phase. It is important that health care providers obtain a complete psychosocial assessment of patients' functioning, including concerns around meaning and personal growth, to respond to these concerns.<sup>35</sup> A growing literature on psychosocial interventions for patients with advanced cancer may inform our understanding of how to facilitate opportunities for meaning and personal growth within the palliative care context.

## Psychosocial Interventions to Promote Meaning in the Advanced Cancer Context

Examples of empirically investigated interventions aimed at engendering meaning during the experience of advanced cancer include dignity therapy,<sup>36, also see 37</sup> meaning-centered group therapy,<sup>38</sup> an ethical will intervention,<sup>39</sup> and a meaning-making intervention.<sup>3</sup> Some interventions center around creating a document reflecting themes of meaning that can be shared with family and friends, and others involve processing the meaning and experience of cancer.

In dignity therapy, individuals meet with a therapist for 1 to 3 sessions to reflect on their legacy and how they would like to be remembered, including important roles, accomplishments, lessons learned, and beliefs.<sup>36</sup> The discussions are audio-recorded and transcribed into a document for patients to share with close others. In a single-arm trial ( $N = 100$ ), 67% of cancer patients with a life expectancy of less than 6 months reported that dignity therapy increased their sense of meaning, and 68% reported that it increased their sense of purpose. Self-reported depressed mood and feelings of suffering also improved.

In the ethical will intervention, cancer patients receiving either curative treatment or palliative care met with a physician for 3 weekly visits to reflect on the meaning of their lives and produce a document capturing their hopes, values, lessons learned, and advice for loved ones with the aim of expressing what they want most for, and from, their loved ones.<sup>39</sup> In a small 2-arm randomized controlled trial ( $N = 24$ ), reductions in suffering due to spiritual distress, concern for loved ones, unfinished business, and fear of the future trended toward significance for individuals randomly assigned to the intervention group ( $n = 10$ ), but not for those in the control group ( $n = 14$ ) who wrote about their physical condition without referencing its meaning.

An example of an individually conducted intervention focused on processing meaning and the experience of cancer is the brief meaning-making intervention developed by Henry and colleagues.<sup>3</sup> It involves 1 to 4 individual sessions with a psychologist aimed at facilitating self-exploration and reviewing the meaning of the cancer experience as well as past experiences, coping, life priorities, and goals. In a small 2-arm randomized controlled trial ( $N = 24$ ), women with stage III or stage IV ovarian cancer randomly assigned to the treatment group ( $n = 12$ ) experienced significantly more meaning at 1 and 3 months after the intervention and higher quality of life at 3 months in comparison to the control group ( $n = 12$ ) who received usual care.

An example of a group intervention focused on processing meaning and the experience of cancer is the meaning-centered group therapy developed by Breitbart and colleagues.<sup>38</sup> It involves 8 weekly group sessions including didactics, discussion,



and experiential exercises around themes related to concepts and sources of meaning in life, the experience of cancer, and understanding individuals' legacy. In a 2-arm randomized controlled trial (N = 90), patients with stage III or stage IV solid tumor cancers randomly assigned to the intervention group (n = 49) demonstrated a significant increase in meaning and overall spiritual well-being from pre- to postintervention, whereas individuals in the supportive psychotherapy control group (n = 41) did not change significantly. Intervention participants demonstrated further improvement in these measures 2 months after the intervention.

These studies inform our understanding of meaning-focused interventions for individuals with advanced cancer and the feasibility of integrating them within palliative care. Overall, these psychosocial interventions demonstrated promising results in their ability to promote meaning in patients with advanced cancer through opportunities for self-exploration and discussion of one's legacy, values, and lessons learned. Nonsignificant effects of 2 meaning-based interventions on distress, including depressive symptoms and anxiety,<sup>3,38</sup> corroborate evidence from our systematic review suggesting that personal growth in the context of advanced cancer is not simply characterized by a lack of distress, but rather reflects a co-occurrence of well-being and perceived positive consequences in the face of great demands.<sup>1</sup>

Interventions focusing on providing a document to individuals have the potential to be particularly cost-effective in that they are brief (up to 3 sessions) and potentially can be implemented by a variety of health professionals, including psychologists, physicians, and nurses, across different settings (e.g., residential settings, care facilities, patients' bedsides). Interventions focusing on processing life meaning in individual or group therapy may also be cost-effective in their delivery (i.e., 1–3 individual sessions or 8 group sessions), although assessment of this outcome awaits research. Two of the interventions are manualized (dignity therapy and meaning-centered group therapy), which can also facilitate dissemination. As Chochinov and colleagues<sup>36(p525)</sup> stated, these data speak to the "importance of using every clinical encounter as an opportunity to acknowledge, reinforce, and, where possible, reaffirm the personhood of patients charged to [health care practitioners'] care."

### Limitations and Future Directions for the Evidence Base on Personal Growth in Advanced Cancer and Associated Interventions

Research with larger sample sizes is needed to build upon the existing evidence base and better understand patients' experiences of personal growth in advanced cancer. Overall, there is a paucity of quantitative research, particularly longitudinal studies, in this area. Given the mixed evidence for the association between personal growth and psychological adjustment, researchers should investigate for whom and under what conditions personal growth is beneficial in the context of advanced cancer. Future research should explore the role of coping processes in personal growth in advanced cancer, in light of the established association between coping and personal growth in the broader literature. Additional facilitators of personal growth also require study. Research is also needed to elucidate the association between cancer prognosis and personal growth, including consideration of nonlinear relationships. Finally, we were unable to identify investigations of the relationship of personal growth in advanced cancer with biomarkers or physical health outcomes. This association should be investigated given the relevance of psychobiological processes in advanced disease (for example, see Reference<sup>40</sup>).

With regard to implications for intervention, intervention research with larger sample sizes and active controls is needed. Within the special context of advanced disease, research to specify the optimal interventions' length, mode of delivery (e.g., group, individual, internet), and interventionist expertise (e.g., psychologist, oncologist, nurse) will enhance their efficiency and effectiveness. Findings from our systematic review can inform potentially effective therapeutic content. Specifically, intervention approaches that set the stage for exploration of the domains of benefit most frequently cited by individuals with advanced cancers—focusing on the present, defining central priorities, savoring one's life and close relationships, acknowledging personal strengths, deepening spirituality, and contributing to others' health and well-being—hold promise. A caveat is that our systematic review characterizes benefits cited by adults with advanced cancer in their naturalistic context; it is crucial that therapeutic exploration of benefits not become prescriptive, conveying the implication that finding meaning and benefit is the sole "right" way to live with advanced disease. The systematic review also revealed that social factors, such as marriage and social support from health care providers, are positively associated with personal growth. An accompanying recommendation is that future intervention research incorporate opportunities to enhance relationships with close others and health care providers. Finally, in the intervention studies described herein, measures of meaning and spirituality primarily served as outcomes. Intervention effects on perceived growth in other domains, such as life appreciation and social relationships, as well as physical symptoms, await study.

### CONCLUSIONS

Many patients with advanced cancer both cite finding meaning at the end of life as important and perceive positive consequences as a result of their experience. In comparison to early-stage cancer or benign disease, advanced cancer may serve to prompt higher levels of personal growth. However, these findings are mixed and may indicate a complex relationship between cancer prognosis and personal growth. Circumstances that contribute to a greater impact of advanced cancer, including younger age or the experience of other stressors, may instigate a higher motivation to find meaning. In addition, psychosocial resources, such as social support, marriage, and optimism, may enhance the capacity to perceive positive consequences and expect more favorable outcomes. Importantly, a co-occurrence of personal growth with both distress and well-being in patients with advanced cancer suggests that personal growth is characterized by perceived positive consequences in the face of considerable challenges, which may be reflected by greater negative and positive markers of adjustment in this unique context. Understanding and awareness of personal growth in individuals with advanced cancer may facilitate health care providers' ability to consider and respond to concerns around meaning and personal growth within palliative care. Integration of the existing research base with intervention development holds promise for enriching the lives of adults living with advanced or end-stage disease.

### REFERENCES

1. Helgeson VS, Reynolds KA, Tomich PL. A meta-analytic review of benefit finding and growth. *J Consult Clin Psychol*. 2006;74:797–816.
2. Stanton AL, Bower JE, Low CA. Posttraumatic growth after cancer. In: Calhoun LG, Tedeschi RG, eds. *Handbook of Posttraumatic Growth: Research & Practice*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers; 2006:138–175.

3. Henry M, Cohen SR, Lee V, et al. The Meaning-Making intervention (MMi) appears to increase meaning in life in advanced ovarian cancer: a randomized controlled pilot study. *Psychooncology*. 2010;19:1340–1347.
4. Moore AM, Gamblin TC, Geller DA, et al. A prospective study of posttraumatic growth as assessed by self-report and family caregiver in the context of advanced cancer. *Psychooncology*. 2011;20:479–487.
5. Mystakidou K, Tsilika E, Parpa E, et al. Personal growth and psychological distress in advanced breast cancer. *Breast*. 2008;17:382–386.
6. Yanez BR, Stanton AL, Hoyt MA, et al. Understanding perceptions of benefit following adversity: how do distinct assessments of growth relate to coping and adjustment to stressful events? *J Soc Clin Psychol*. 2011;30:699–721.
7. Tedeschi RG, Calhoun LG. Posttraumatic growth: conceptual foundations and empirical evidence. *Psychol Inq*. 2004;15:1–18.
8. Zilberg NJ, Weiss DS, Horowitz MJ. Impact of Event Scale: a cross-validation study and some empirical evidence supporting a conceptual model of stress response syndromes. *J Consult Clin Psychol*. 1982;50:407–414.
9. Zoellner T, Maercker A. Posttraumatic growth in clinical psychology: a critical review and introduction of a two component model. *Clin Psychol Rev*. 2006;26:626–653.
10. Rini C, Manne S, Duhamel KN, et al. Mothers' perceptions of benefit following pediatric stem cell transplantation: a longitudinal investigation of the roles of optimism, medical risk, and sociodemographic resources. *Ann Behav Med*. 2004;28:132–141.
11. Stanton AL, Danoff-Burg S, Huggins ME. The first year after breast cancer diagnosis: hope and coping strategies as predictors of adjustment. *Psychooncology*. 2002;11:93–102.
12. Stanton AL, Low CA. Toward understanding posttraumatic growth: commentary on Tedeschi and Calhoun. *Psychol Inq*. 2004;15:76–80.
13. Algoe SB, Stanton AL. Is benefit finding good for individuals with chronic disease? In: Park CL, Lechner SC, Antoni MH, et al., eds. *Medical Illness and Positive Life Change: Can Crisis Lead to Personal Transformation?* Washington, DC: American Psychological Association; 2009:173–193.
14. Brenner H. Long-term survival rates of cancer patients achieved by the end of the 20th century: a period analysis. *Lancet*. 2002;360:1131–1135.
15. Low CA, Beran T, Stanton AL. Adaptation in the face of advanced cancer. In: Feuerstein M, ed. *Handbook of Cancer Survivorship*. New York, NY: Springer; 2007:211–228.
16. Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: measuring the positive legacy of trauma. *J Trauma Stress*. 1996;9:455–471.
17. Reb A. Transforming the death sentence: elements of hope in women with advanced ovarian cancer. *Oncol Nurs Forum*. 2007;34:E70–E81.
18. Thomas J, Retsas A. Transacting self-preservation: a grounded theory of the spiritual dimensions of people with terminal cancer. *Int J Nurs Stud*. 1999;36:191–201.
19. Schulman-Green D, Bradley EH, Knobf MT, et al. Self-management and transitions in women with advanced breast cancer. *J Pain Symptom Manage*. 2011;42:517–525.
20. Luoma M-L, Hakamies-Blomqvist L. The meaning of quality of life in patients being treated for advanced breast cancer: a qualitative study. *Psychooncology*. 2004;13:729–739.
21. Miccinesi G, Bianchi E, Brunelli C, et al. End-of-life preferences in advanced cancer patients willing to discuss issues surrounding their terminal condition. *Eur J Cancer Care (Engl)*. 2012;21:623–633.
22. Salmon P, Manzi F, Valori RM. Measuring the meaning of life for patients with incurable cancer: the Life Evaluation Questionnaire (LEQ). *Eur J Cancer*. 1996;32:755–760.
23. Daiter S, Larson RA, Weddington WW, et al. Psychosocial symptomatology, personal growth, and development among young adult patients following the diagnosis of leukemia or lymphoma. *J Clin Oncol*. 1988;6:613–617.
24. Posluszny DM, Baum A, Edwards RP, et al. Posttraumatic growth in women one year after diagnosis for gynecologic cancer or benign conditions. *J Psychosoc Oncol*. 2011;29:561–572.
25. Tomich PL, Helgeson VS. Is finding something good in the bad always good? Benefit finding among women with breast cancer. *Health Psychol*. 2004;23:16–23.
26. Oh S, Heflin L, Meyerowitz BE, et al. Quality of life of breast cancer survivors after a recurrence: a follow-up study. *Breast Cancer Res Treat*. 2004;87:45–57.
27. Widows MR, Jacobsen PB, Booth-Jones M, et al. Predictors of posttraumatic growth following bone marrow transplantation for cancer. *Health Psychol*. 2005;24:266–273.
28. Rand KL, Cripe LD, Monahan PO, et al. Illness appraisal, religious coping, and psychological responses in men with advanced cancer. *Support Care Cancer*. 2012;20:1719–1728.
29. Lechner SC, Zakowski SG, Antoni MH, et al. Do sociodemographic and disease-related variables influence benefit-finding in cancer patients? *Psychooncology*. 2003;12:491–499.
30. Lin HR. Searching for meaning: narratives and analysis of US-resident Chinese immigrants with metastatic cancer. *Cancer Nurs*. 2008;31:250–258.
31. Smith A, DeSanto-Madeya S, Pérez J, et al. How women with advanced cancer pray: a report from two focus groups. *Oncol Nurs Forum*. 2012;39:E310–E316.
32. Voogt E, van der Heide A, van Leeuwen A, et al. Positive and negative affect after diagnosis of advanced cancer. *Psychooncology*. 2005;14:262–273.
33. Mystakidou K, Parpa E, Tsilika E, et al. Traumatic distress and positive changes in advanced cancer patients. *Am J Hosp Palliat Med*. 2007;24:270–276.
34. Chio CC, Shih FJ, Chiou JF, et al. The lived experiences of spiritual suffering and the healing process among Taiwanese patients with terminal cancer. *J Clin Nurs*. 2006;17:735–743.
35. Block SD. Psychological considerations, growth, and transcendence at the end of life: the art of the possible. *J Am Med Assoc*. 2001;285:2898–2905.
36. Chochinov HM, Hack T, Hassard T, et al. Dignity therapy: a novel psychotherapeutic intervention for patients near end of life. *J Clin Oncol*. 2005;23:5520–5525.
37. Xiao H, Kwong E, Pang S, et al. Perceptions of a life review programme among Chinese patients with advanced cancer. *J Clin Nurs*. 2012;21:564–572.
38. Breitbart W, Rosenfeld B, Gibson C, et al. Meaning-centered group psychotherapy for patients with advanced cancer: a pilot randomized controlled trial. *Psychooncology*. 2010;19:21–28.
39. Gessert CE, Baines BK, Kuross SA, et al. Ethical wills and suffering in patients with cancer: a pilot study. *J Palliat Med*. 2004;7:517–526.
40. Cohen L, Cole SW, Sood AK, et al. Depressive symptoms and cortisol rhythmicity predict survival in patients with renal cell carcinoma: role of inflammatory signaling. *PLoS One*. 2012;7:e42324.
41. Smith BW, Dalen J, Bernard JF, et al. Posttraumatic growth in non-Hispanic white and Hispanic women with cervical cancer. *J Psychosocial Oncol*. 2008;26:91–109.