

# Enhancing Adaptation During Treatment and the Role of Individual Differences

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With increased effectiveness of medical treatment for cancer, greater attention has been directed to the quality of life of cancer patients and cancer survivors. Work on this topic is aimed at better understanding the determinants of quality of life and creating ways to optimize these outcomes. Insights from many disciplines inform this effort. For example, personality psychology suggests bases for naturally occurring differences in resilience but also suggests ways to enhance adaptation and promote greater resilience. The author's current work relies on a view of individuals as goal-seeking beings whose efforts toward desired outcomes are threatened by diagnosis and treatment of cancer. Some react to such adversity with increased efforts, others with a giving-up response. This difference promotes differences in emotional well being. The author's group is focused on enhancing adaptation and providing patients with skills for stress management that permit patients to remain engaged in the pursuits that form their lives. This stress-management intervention has reduced the prevalence of depression among breast cancer patients and has increased the extent to which they report positive sequelae from cancer. The latter effect also has been related to differential reduction in cortisol. Ongoing work is examining well being in longer term survivors, including the effects of this intervention and the possibility that the intervention will have positive consequences for physical health. *Cancer* 2005;104(11 Suppl):2602-7.

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**KEYWORDS:** emotional well being, cortisol, long-term survival, personality psychology, psychosocial intervention, quality of life, stress management.

**C**ancer medicine has become increasingly effective. As more people are cured of cancer, attention has begun to shift to issues surrounding cancer survivorship. It remains true, of course, that the central challenge of cancer is to eliminate disease. However, it is increasingly recognized that the disease, per se, is not the only source of concern, nor is it the only target for intervention. The subjective quality of the patient's life also is important, whether the amount of life that remains to the patient is long or is shorter.<sup>1,2</sup>

The concept of quality of life first came to the attention of the medical community in the form of issues of functionality. It matters, for example, whether patients are free enough from pain and fatigue to be able to engage in the activities of normal daily life.<sup>3,4</sup> If they are not, then their quality of life is said to be impaired. Today, it is understood that the concept of quality of life is broader than these functional issues (although it incorporates such issues).<sup>2,5,6</sup> Quality of life also encompasses such experiences as the perception that an individual's life has meaning and the ability to experience pleasure in daily events. Issues such as these are salient to patients throughout the medical treatment process.

Presented at Cancer Survivorship: Resilience Across the Lifespan, Washington, DC, June 2-4, 2002.

Supported by National Cancer Institute Grants CA64710, CA78995, and CA84944.

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Received February 28, 2005; accepted May 4, 2005.

These issues also remain present after treatment has ended. No longer is it taken for granted that successfully treated patients simply take up their lives where they had left off, reassuming the mantle of an implicit invulnerability to disease.<sup>7,8</sup> Rather, questions are being raised about whether even a fully successful medical treatment for cancer leaves permanent psychic scars as well as physical scars. Questions also are being raised about the physical impact of the cancer treatment and the extent to which the physical effects continue to create problems in people's lives years later.<sup>9</sup>

### **Perspectives on Cancer Survivorship**

Issues such as these are now under active investigation by several research groups. In this article, I focus on some of what has been found by the group to which I belong. The perspective I bring to these questions is somewhat unusual in cancer-related research, even psychooncology research. My perspective is that of a personality psychologist who is interested more generally in issues raised by people's efforts to deal with adversity.<sup>10,11</sup>

Personality psychology has two main themes, both of which are germane to the topic of cancer survivorship.<sup>12</sup> The first theme is that life has an internal dynamic. Individuals are organized such that certain broad functions play out in everyone's life in one form or another (although psychologists differ on which functions should be accorded the most importance). This theme, as applied to cancer patients and cancer survivors, suggests a need to keep broad functions of life in mind when thinking about persons who are affected by cancer.<sup>11</sup> Cancer patients are more than cancer patients: They are people.

The second theme is the importance of individual differences. Although the same functions play out in every person's life, that does not mean that people are identical. Individuals view the world from very different angles. Most important, in this context, individuals differ in their emotional and behavioral responses to adversity.<sup>10,13,14</sup> With regard to cancer patients and cancer survivors, this theme suggests that individual differences will play an important role in people's quality of life when they are in treatment for cancer and after they survive cancer. More simply, the quality of life of cancer survivors is partly a product of the cancer experience, but partly a product of the individual's personality.

Both of these themes are reflected in the findings of the research group to which I belong. This group has been engaged in research in psychooncology for more than 15 years, primarily with breast cancer patients. We began with studies of the natural course of

adaptation to early-stage breast cancer (Stages I and II), examining normative patterns of adjustment over time, processes that underlie successful adaptation, and individual differences in adaptation.<sup>15-17</sup> In 1995, with the increased participation of Dr. Michael Antoni, the group began to conduct intervention studies, trying to enhance adaptation of breast cancer patients during the period of adjuvant treatment immediately after surgery.<sup>18</sup> We also are beginning to study the prediction of quality of life in longer term cancer survivors (those who have been cancer-free for > 5 yrs).

### **Conceptual Model**

Our overall approach to cancer survivorship is informed by a view of personality in which individual lives are seen as organized around their goals. The notion that humans intrinsically are goal-directed beings is commonplace in contemporary psychology.<sup>13</sup> The goal construct is used very broadly in this view, referring both to abstract, long-term aspirations (e.g., to become a scientist, to get married) and also to concrete, short-term actions (e.g., to cook dinner, to get to work on time). The construct applies not just to achievement goals but also to goals that involve social integration and connectedness and goals of exploration, among others. In this view, people's goals are seen as organized hierarchically, with a few abstract goals representing the core of the self and others representing pathways by which the core values are attained. A continuing pursuit of goals is one core dynamic that sometimes is ascribed to personality.<sup>13</sup> It is this dynamic on which our approach to the cancer experience implicitly rests.

Within this framework, the diagnosis of a disease such as cancer represents a threat to the patient's continued ability to reach his or her goals.<sup>10,11</sup> All goals are threatened by a cancer diagnosis. Most salient is the overall goal of continuing one's very life. Among others are the desire to maintain the self-image of a healthy person, the desire to continue engaging in a wide range of specific activities, and the ability of the patient to live out one's intended future with loved ones. Which threats are most salient to a person will vary with each patient. The threat imposed by the cancer itself (and its threat to life) is the core of the adversity the patient confronts, but this threat is joined by others imposed by the difficulty of the treatment regimen and its side effects.<sup>19</sup>

### **Individual differences**

The conception of human behavior underlying our approach to the cancer experience also assumes that people respond to such threats in differing ways, reflecting personality differences. For example, some

patients are confident enough about being able to overcome the obstacles they are confronting that they respond to this challenge with renewed efforts at goal attainment.<sup>13,20</sup> In contrast, other patients are sufficiently doubtful about success that they give up trying to struggle forward, ultimately giving up on the goals that the adversity is threatening. It is these patients who are likely to be at greatest risk for psychological distress and dysfunction after a life-threatening event such as the diagnosis of cancer.

This view of individual differences reflects the essence of our view of the nature of human resilience.<sup>21</sup> Resilience is conferred by qualities that keep people engaged in the activities of their lives and trying to overcome obstacles in their way. Such qualities include aspects of personality (such as optimism), but they are not limited to personality. Social integration is another important resilience variable,<sup>22-24</sup> and there may be others.

This conception of the role of individual differences in the process of adapting to cancer and its treatment has found support in several studies of how women adjust to the diagnosis of breast cancer.<sup>15,16,25,26</sup> This work has examined both emotional well being and the responses that women use in an effort to cope with the experience. A cancer diagnosis and subsequent treatment induce diverse coping responses. Obviously, these include instrumental efforts to take the steps needed to ensure that one has adequate medical treatment. They also include efforts to reduce and manage the emotional distress that the threat elicits.

The specific things that people do to try to cope diverge greatly. This is especially true of coping responses aimed at reducing emotional distress. Responses that seem to have the objective of distress reduction include (but are not limited to) self-distraction, use of alcohol or other drugs to numb the experience, attempts to push the threatening event away as though it were not real, use of soothing social support resources, use of religious or spiritual resources, and accepting and accommodating to the reality of the situation.

These diverse reactions, in turn, have differing consequences. We believe that the consequences reflect the extent to which the coping response returns the patient to the pursuit of his or her normal activities and goals. Reactions that lead to engagement in the activities of life (e.g., positive reframing, use of social resources, and acceptance) help diminish distress later.<sup>15,27</sup> Reactions that create unsustainable perceptions that nothing is wrong (denial) and those that reflect the giving up of continued goal pursuit (disengagement) increase distress later.

In the course of adaptation to the breast cancer experience, personality differences are expressed through this divergence of coping and in the emotional consequences of these coping responses.<sup>15,25,26</sup> Coping reactions organized around acceptance of the changed situation and the attempt to make the best of it were identified as more likely among women with relatively optimistic personalities: women who generally were confident about overcoming the obstacles that life places in front of them. These coping responses, which reflect a continued engagement with life, predicted less distress later. Coping organized around the attempt to avoid the situation's reality was more likely among women with more pessimistic personalities: women with less confidence about positive outcomes in life. Also more common among these women were reactions that reflected a giving up of effort toward their life goals. Rather than being life-engaged, these responses suggest a letting go of life. They predicted greater distress later.

#### *Psychosocial intervention*

As psychologists considering the psychosocial impact of cancer diagnosis and treatment, our objective is to keep patients engaged in life by maintaining continued goal engagement. How can that be done best? The answer we have been investigating since 1995 is that the process of dealing with adversity can be nudged toward greater effectiveness by psychosocial intervention.

Many interventions have been proposed and implemented with cancer patients.<sup>28-31</sup> The intervention used in our work is a cognitive-behavioral stress management (CBSM) intervention.<sup>32</sup> It contains a series of procedures aimed at providing individual patients with tools to help them deal more effectively with whatever stresses they encounter in their lives. In accord with this structure, the intervention is not presented to cancer patients as being about cancer per se. Rather, the cancer diagnosis is simply the path that led the women to the opportunity to learn these techniques. The techniques themselves are ways of managing all of the stresses of their lives, both now and later.

The specific techniques in which participants are trained range widely, including deep-muscle relaxation, assertiveness in the use of social support, identification of dysfunctional thought patterns, normatively effective coping responses, and so on. The intervention includes in-session didactics and experiential exercises and out-of-session assignments, such as practicing relaxation and monitoring stress responses (for greater details, see Antoni<sup>32</sup>). These skills are taught in 10 weekly, 2-hour sessions that are con-

ducted by trained therapists in a supportive group format.

The overall objectives of this intervention are to reduce distress, to induce women to become more adept at coping with the daily difficulties of their struggle with cancer, and to empower them more generally to handle stress in their lives adaptively. In sum, we hope to make them better at dealing with life's many adversities, including those that extend beyond their current bout with cancer. If this objective can be met, then the result should be less emotional distress (both now and later) and more positive orientations toward the future.

In the short term, the quality of these women's lives should be better than it would be otherwise. In the long term, these psychological changes also may influence physical responses to stress. It is clear that psychological stress does have physical concomitants. It is less clear whether an intervention on psychological reactions can also produce physical changes that confer long-term health benefits.<sup>33</sup> Investigating this possibility, however, is a long-range objective of this research.

Does this intervention enhance adaptation among cancer patients? Have we been able to intrude on the normal processes of personality strongly enough to make a change for the better? The answer to date is a cautious yes. In our initial trial,<sup>18</sup> women were followed for up to 14 months after their breast cancer diagnosis. Psychosocial well being (reflected in several ways) was assessed at four points during that interval. The intervention (compared with a control condition) reduced the prevalence of moderate depression. It also had two other positive effects: It caused an increase in reports of having found benefits in the experience of having cancer, and it increased women's reports of their optimism about life in general. The latter is particularly noteworthy, because it is known that optimism is a stable aspect of personality. All of these effects were sustained over a short-term follow-up (3 mos after treatment), although the effect for benefit finding faded over the longer term follow-up (6 additional mos). Preliminary analyses of a second trial (now being written up for publication) indicate that the intervention has several other beneficial effects on psychosocial outcomes.

The focus of our first trial was on the impact of the intervention on quality of life. However, the study also permitted collection of pilot data bearing on other issues. Some of the members of the research group are particularly interested in the extent to which the intervention influences physiological as well as psychological responses.<sup>34</sup> In an initial effort to obtain information on this question among cancer patients, a

subset of the women who participated in the study described above also contributed blood for analysis. Blood was collected at the time of entry into the study and at a time shortly after the intervention had been completed. These blood samples were analyzed for several physiologic indicators of stress.

These analyses revealed that women who underwent the CBSM intervention experienced reductions in serum cortisol that were greater than those experienced by women in the control condition.<sup>35</sup> Furthermore, this difference between groups in cortisol appears to have been mediated by the difference between groups in benefit finding. Conceptually similar findings also emerged for testosterone.<sup>36</sup> Thus, there is evidence that the intervention has physiologic effects in the short term that are linked to the intervention's psychological effects.

#### *Individual differences reconsidered*

The CBSM intervention used in this research was intended to be of value to all women diagnosed with breast cancer. However, as noted above, there is every reason to believe that personality differences play an important role in determining people's responses to adversity. It also seems likely that individual differences play a role in determining who benefits most from the intervention. This possibility was tested by splitting the sample according to their levels of optimism at entry into the study.<sup>18</sup> Examination of the effects of the intervention within these subsamples revealed that the beneficial effects of the intervention were most pronounced among those women who initially were the least optimistic.

To the personality psychologist, this difference in impact may reflect the fact that it was the more pessimistic women who had the most room for change in their lives. That is, in some ways, the CBSM intervention teaches the women to act as though they are optimists. It teaches them to remain open, care for themselves, calm themselves when under pressure, and take steps to ensure that their needs are met. Overall, it teaches them a set of strategies that help them remain engaged in their lives. Remaining engaged is what optimists do, according to previous studies.<sup>15,16,25,26</sup> It is possible that the more optimistic women in the CBSM groups already had these skills, whereas those who were less optimistic were trying these skills out for the first time. Whatever the reason, women who already were optimistic by nature gained less from the intervention than women whose personalities were more pessimistic (a finding that has been replicated conceptually by recent evidence of greater benefit from an intervention among women with greater initial distress<sup>37</sup>).

This pattern also has an encouraging clinical implication. A concern underlying any attempt to intervene psychologically with a wide spectrum of patients is the possibility that the intervention will be accessible and beneficial primarily to those persons who are already fairly well off. Although it would be gratifying to benefit any patients, it would be worrisome if the intervention were beneficial mostly to those who needed it least. This does not appear to have been the case in this sample. Of course, this is not the final word on the matter. Our sample overall was characterized by low levels of dysfunction (which is true of most research samples). The women who were less optimistic in our sample would not be viewed as extremely pessimistic. There remains concern about the ability of the intervention to influence the experiences of individuals who are worse off at the time of its implementation than the women in this study. This is an issue to which future research should remain sensitive.

### Long-Term Survivors

The work described above dealt with the experiences of women with breast cancer during the year immediately after their diagnosis and treatment. Thus, it deals only with the first, halting stages of cancer survivorship. However, the involvement of a large number of patients with breast cancer in this research over an extended period also has given us the opportunity to examine some questions concerning quality of life among longer term cancer survivors. Although this research is ongoing, several findings already have emerged.<sup>38–40</sup> These findings all suggest that the themes stressed above concerning the role of personality in subjective quality of life are just as relevant in the long term as they are in the short term.

It is now clear that stable individual differences also play a role in the prediction of quality of life among long-term survivors. Individual differences in optimism that were measured at the time of breast cancer diagnosis predicted levels of depressive symptoms, subjective quality of life, and negative mood as long as 13 years later.<sup>38</sup> Even better as predictors of emotional well being in the long term were reports of emotional well being in the short term (which were dependent at least in part on the patients' personalities). That is, women who experienced greater distress 3 months after their initial treatment also were reporting greater distress (on the same measures) many years later.

Marital status also was important as a predictor in this study. Women who had partners at the time of diagnosis and treatment were better off emotionally at long-term follow-up compared with women who had

been without partners. Thus, there is substantial continuity of emotional well being across many years among survivors of breast cancer, which is rooted partly in personality and social connection. In contrast, medical variables played virtually no predictive role in these outcomes.

In another set of analyses, we examined whether early reports of finding benefits from the experience of having cancer predicted greater emotional well being later.<sup>39</sup> There is little information available on this question, and the information published to date is conflicting. One group found that early benefit finding predicted elevated distress 9 months later.<sup>40</sup> We examined the question with a longer time lag. In our study, women who reported on benefit finding in the first year after diagnosis reported their well being 5–8 years postdiagnosis. In that study, greater initial benefit finding predicted less long-term distress.<sup>39</sup>

Our interest in long-term survivorship has led us to join with other investigators to develop a measure of diverse aspects of quality of life that was designed for use with long-term cancer survivors.<sup>41</sup> This measure has 12 subscales, including some that measure domains specific to cancer survivors and some that are more general. Using this measure, we recently determined that different aspects of long-term quality of life have quite different antecedents.<sup>42</sup> Most outcomes that are psychosocial in nature are predicted best by personality and social integration (as in the analyses discussed above). However, another important aspect of well being—financial worries—was predicted only by medical variables.

Thus, it is clear that not all aspects of long-term quality of life derive from considerations of personality and social connectedness. However, enough aspects do connect closely to personality and social variables that those who are interested in the experience of cancer patients would do well to keep such variables in mind.

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