

Chapter 2

**Behavioral and Psychological
Approaches**

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Behavioral and Psychological Approaches

INTRODUCTION

Over the past two decades, the role that personal characteristics and behaviors might play in recovery from serious illness has become a widely discussed topic, both in the scientific and popular literature. In self-help books geared toward cancer patients, for example, certain attitudes and characteristics, such as having a “cancer-prone personality,” are commonly linked with hastening the course of illness or allowing it to develop in the first place. Other characteristics, such as a strong “will to live” and a good “coping style,” are often credited with preventing illness, reversing the course of existing disease, or prolonging life. Newspaper and magazine accounts of spontaneous remissions and of individuals who outlived their physicians’ predictions lend widespread support to these ideas. Recently, reports of spontaneous remissions from cancer have begun to be collected in an annotated bibliography intended for researchers studying psychosocial factors and interventions in cancer treatment (688).

Several popular books on the role of emotions and behavior in recovery from serious illness have helped bring this subject into the foreground of cancer treatment. Some of the best known examples include Norman Cousins’ *Anatomy of an Illness* and *Head First*, Bernie Siegel’s *Love, Medicine and Miracles* and *Peace, Love and Healing*, and the Simontons’ *Getting Well Again*. From various points of view, these books encourage patients to combat feelings of hopelessness, passivity, and depression that may accompany life-threatening illness and to develop positive outlooks and effective coping strategies. Along with a number of other available books on the subject, these books support the view that patients’ efforts to promote physical, emotional, psychological, and spiritual well-being, or “healing,” can enhance the environment for medical care, improve psychological and physical adjustment to the disease, and in some cases tip the balance toward recovery. Guided imagery, meditation, psychological counseling, support groups, and other approaches are often used to help patients achieve these goals.

Increasingly, psychological and behavioral methods are becoming a regular part of cancer treatment, whether included explicitly as part of conventional regimens or sought out independently. For the most part, the aim of these methods is to enhance quality of life. In some cases, however, claims of tumor regression or prolonged survival are made, based largely on case reports and uncontrolled studies. Although initial attempts at controlled studies evaluating psychosocial interventions have recently been made, the efficacy of psychological and behavioral approaches in improving the course of cancer is still uncertain.

This chapter focuses on the use of psychological and behavioral methods for modifying the disease process itself—in other words, as unconventional cancer treatment. Conventional uses of psychological interventions in enhancing quality of life are summarized first, followed by a brief discussion of current research on relationships among emotions, immunity, and cancer. The next section of this chapter describes three of the most popular psychological interventions for which claims of tumor regression or life extension have been made. The final section summarizes the available information from studies attempting to evaluate the efficacy of various psychological and behavioral interventions in altering the course of cancer.

PSYCHOSOCIAL SUPPORT FOR CANCER PATIENTS

In the past decade, demand by cancer patients and survivors for psychosocial support services has grown. Community organizations, patients, treatment centers, and professional societies have worked together to develop support services for an estimated 5 million U.S. cancer patients and survivors (406). A variety of psychological and behavioral interventions are being used to address physical and psychosocial needs of cancer patients and long-term survivors. Some of these interventions are incorporated into conventional treatment programs, while others are offered outside of medical settings, e.g., as part of cancer support group activities. For the most part, these interventions are designed to help patients reduce pain, control nausea and vomiting associated with chemotherapy, and cope with

other physical or mental disorders that the disease and its treatment may bring about (523,742). Examples of interventions used to reduce distress associated with cancer and chemotherapy include hypnosis, progressive muscle relaxation training with guided imagery, and systematic desensitization (102,169,823,844).

Increasingly, psychological approaches are also being used to address broader emotional and social issues among cancer patients and their families. Patients may seek help in changing their lifestyles, in reducing stress, in reexamining their relationships with others, or in planning for the future (807).

There is a wide variety of hospital-based and independent support groups and peer support programs for patients and their families.¹ These groups differ in scope, components, and approach. Some are sponsored by the American Cancer Society (ACS), including CanSurmount, Reach for Recovery, and Candlelighters Childhood Cancer Foundation. Patients calling ACS's Cancer Response System telephone number can be referred to local ACS support groups, hospital-based groups, or affiliated groups. A number of others are associated with the National Coalition for Cancer Survivorship, an Albuquerque-based organization that encourages the development of local support groups, provides information for patients and researchers, and assists patients with problems in job discrimination, insurance coverage, and doctor-patient communication (825).

The psychosocial support offered by the groups described below is based on the idea that cancer patients can improve the quality of their lives and perhaps contribute to their treatment and recovery by becoming actively involved in the fight against their cancer. Unlike self-help groups that also act as advocates of either mainstream or unconventional cancer treatments, these groups are relatively autonomous (528). They are not affiliated with facilities or organizations that provide medical care or advocate particular types of cancer treatment. They all, however, see their programs as complementary to ongoing medical care.

While there is a growing population of cancer patients who wish to become actively involved in the fight against their illness through these sorts of programs, it is estimated that only about one in ten patients follow this route (528). It is possible that more cancer patients will choose to pursue these approaches if they become more widely known and readily accessible (e.g., through oncologists or hospitals) (528).

One of the best known programs offering psychosocial support is the Wellness Community, which was founded by Harold Benjamin in 1982 in Santa Monica, California and is expanding, through patient demand, to other parts of the country.² The Wellness Community's program, which is free to participants, is intended to encourage cancer patients and their families to participate actively in the fight for recovery, thereby improving the quality of their lives and possibly enhancing their chances of long-term survival (612). Since its beginning, it has attracted more than 8,000 cancer patients and family members (954).

The Wellness Community explicitly states that its approach to patient care is in support of, not a substitute for, mainstream medical care. Many cancer patients are reportedly referred to the program by their oncologists. Oncologists also serve on the centers' Professional Advisory Boards, which have direct input to the staff of State-licensed psychotherapists at each center. The size of the staff at each facility varies according to the community; as of 1987, the program in Santa Monica was staffed by seven psychotherapists and seven psychotherapy interns (612).

The central elements of the Wellness Community are the mutual aid groups that focus on cancer patients' feelings and that teach self-help techniques with the idea that "positive emotions and positive mental activities may improve the possibility of recovery from cancer" (954). Other group activities include lectures for patients (on topics ranging from self-esteem to nutrition), potluck dinners, charade nights, joke festivals, picnics, and other group activities designed "to bring smiles and laughter into the lives of cancer patients" (612). In addition,

¹Examples include Cancer Care, Cancer Guidance Institute, Cancer Lifeline, Center for Attitudinal Healing Phone Pal/Pen Pal Program, Cancer Hopefuls United for Mutual Support, the International Association of Laryngectomies, Make Today Count, Ronald McDonald House, and the United Ostomy Association.

²As of early 1990, programs were in operation in Redondo Beach, CA, San Diego, CA, and Knoxville, TN in addition to Santa Monica. Several other centers were planned or were in various stages of development at that time (74).

members may also have one-on-one sessions with the staff psychotherapists.

Another widely known support group is the Exceptional Cancer Patients (ECaP) program founded in 1978 by Bernie Siegel, M.D. in New Haven, Connecticut. The program is said to be based on "carefrontation," described as "a loving, safe, therapeutic confrontation, which facilitates personal change and healing" (804). Siegel's program includes individual and group support that makes use of patients' dreams, drawings, and images in an effort to "make everyone aware of his or her own healing potential" (804) and to become an "exceptional cancer patient," which Siegel defines as one who gets well unexpectedly. Patients are charged for an initial, intensive, intake session,³ and for group and individual sessions thereafter.

ECaP states that its psychotherapy is in addition to, not in place of, mainstream medical care, and that no medical advice is offered to participants (293). ECaP also serves as an information resource; according to its patient literature, more than 750 people from all over the country write or call ECaP each week seeking information (803). It can supply books, audio- and videotapes, and reading lists. ECaP also keeps track of other centers that offer similar services and may refer callers to facilities in their vicinity. In an effort to further expand the availability of its services, about once a month ECaP offers intensive, 2-day training sessions for people interested in setting up similar groups (which can be called ECaP-like groups, as there is only one ECaP center). As of early 1990, approximately 160 people had received this training (293).

Another model support program is the Commonweal Cancer Help Program, which was started in 1985 in Bolinas, California. Michael Lerner, Ph. D., Commonweal's President, and Rachel Naomi Remen, M.D., medical director, organize groups of 8 to 12 patients for intense, week-long sessions aimed at helping patients cope with stress and resolve fears and anxieties (particularly about pain, illness, and death), and improve the quality of their lives. The main purpose of the sessions is to help cancer patients "discover those inner and outer conditions under which they may best maximize their health and wellbeing" (744).

Commonweal retreats are held in a rustic ocean-side center about an hour drive north of San Francisco. The retreat staff includes the director, a co-director who is a psychologist trained in cancer work, a yoga teacher, a vegetarian cook and art teacher, and a massage staff. The program includes a cognitive or informational component and a multifaceted lifestyle component. Commonweal offers participants access to its library of books and articles from the medical and popular literature dealing with cancer treatment and research. The remainder of its program offers patients a daily regimen designed to release stress and encourage personal expression of feelings. The program includes small group sessions, lectures, massage, yoga, training in relaxation and stress reduction techniques, meditation, imagery, walks in nature, journal and dream work, reflection, and other forms of artistic expression and personal exploration. Commonweal's directors believe that these activities—exercise, healthful diet, deep relaxation, opportunity for personal expression, access to information and caring support—release fear and stress and enable patients to identify lifestyle and healing path that is best for them (532,744).

The majority of the participants in the program have been women, and the relatively low cost of the retreat has allowed people from varying backgrounds to attend. Generally, participants have heard about the program through physicians, other health care providers, or previous participants. People interested in the program are screened by the coordinator to ensure that they understand the nature of the program, can work well with a small group, and are able to take care of themselves. Participants must also be under the care of a physician and understand fully that the program is not itself a complete treatment (532).

PSYCHONEUROIMMUNOLOGY

It is often suggested in the popular literature that various types of behavioral intervention designed to reduce stress or to promote positive mental images act by enhancing the immune system. Since the immune system is the body's primary defense against many diseases, its enhancement is commonly linked with reducing the susceptibility to cancer or with enhancing the ability to fight cancer.

³All services are available on a sliding scale if a cancer patient cannot afford their cost.

Unfortunately, the actual relationships among emotions, immunity, and disease are still poorly understood, despite a large body of literature on the subject spanning several decades. Within the last 10 years, however, new evidence has emerged concerning the biological basis of interrelationships among personality, emotion, behavior, immune alterations, neuroendocrinology, and the onset and progression of disease. The relatively new interdisciplinary field of psychoneuroimmunology (PNI) encompasses these diverse areas of research (1 1,358,461).

One of the catalysts for the recent interest in PNI research was the discovery by Ader and colleagues that immune functions in experimental animals could be altered by behavioral changes (13). That observation provided evidence that the immune system did not function completely autonomously, as was previously thought, but that other biological processes, e.g., necrologic and endocrine factors, could directly modulate immune function. Recent PNI research has revealed a number of biochemical and neurological connections between the immune system and the central nervous system. Their clinical significance, however, is still unclear (14,230,358,817).

For many years, certain types of cancer have been thought to be influenced by immune processes, although the nature and extent of these influences are still only partially understood. Experimental animal data suggest that tumors induced by viruses or ultraviolet radiation appear to elicit immune responses (via antigen-specific T-lymphocytes) that act against those particular tumor cells. However, the majority of cancers of internal organs (not induced by viruses or ultraviolet radiation) are apparently not affected by T-cell-mediated immunity (488), although they could be susceptible to other immune processes in ways that are also poorly understood. Burnet's widely known immune surveillance theory (112), which proposes that one function of the immune system is to recognize and destroy malignant cells as they arise, has gradually been modified and expanded to take into account broader possibilities for additional types of immune action against malignant cells (488).

Attempts to measure and interpret alterations in immune function are central elements of many current PNI studies. Investigators have tried various ways of testing the hypothesis that the immune system mediates among emotions, personality, behavior, and disease onset and progression. However,

a major difficulty in interpreting the significance of alterations in particular immune functions is that the clinical implications—benefit or impairment with regard to disease—are not yet known (93). A statistically significant increase in circulating levels of disease-fighting cells could, for instance, reflect normal variability, or could have only short-term effects, or could be compensated for by changes in other immune processes (93). The critical associations needed to interpret immune system alterations and changes in cancer onset or progression have not been demonstrated (12,461,564,834).

For the most part, PNI research has focused on correlations between psychosocial characteristics, such as personality, emotions, and stress, and specific biochemical measures of immune function, or between psychosocial characteristics and disease onset and progression. A handful of studies have been carried out to assess possible effects of psychological interventions on immune function or on disease onset and progression.

So far, PNI research on links between psychosocial characteristics and disease has suggested that stress, or the ways in which individuals cope with stress, may influence immune function. It is not known if stress acts directly, via physiologic processes, or indirectly, via altered health-related behaviors, such as alcohol drinking, a poor diet, lack of exercise, etc. Of critical importance, it is not known whether these altered immune responses are directly linked to the onset or progression of cancer (564).

Other studies have examined effects of psychosocial factors on the risk of disease onset. There are conflicting data on relationships between psychosocial factors, e.g. "cancer-prone personalities," and cancer onset and progression. For instance, clinical depression has been found to have little or no effect on the risk of developing cancer in large segments of the population (300,990). A recent review of these studies concluded that "the results of prospective studies [on psychosocial risk factors and cancer onset] do not yet permit firm conclusions about the cancer-prone personality" (564).

Many studies have examined effects of psychosocial factors on the course of cancer, with mixed results. In general, four types of factors have been examined: adjusting to illness, emotional expression, will to live, and emotional stress. A number of studies have reported correlations between one or more of these factors and cancer outcome (542,735).

A recent study of 36 women with recurrent breast cancer found that signs of joyful attitudes were associated with longer disease-free intervals (543). Two other recent studies did not find a correlation between psychosocial factors and length of survival or time to relapse in patients with advanced disease (176,460).

At present, one of the most controversial areas of PNI research concerns effects of behavioral interventions on immune function and cancer. Preliminary evidence suggests that some psychological or behavioral interventions, such as hypnosis (370) and relaxation (476), can alter immune function in healthy individuals. Another study in progress is examining effects of relaxation and imagery techniques on immune function in cancer patients (808). Whether psychological and behavioral methods may influence the onset or progression of cancer is still an open question. Studies that have approached this issue are discussed in the last section of this chapter.

UNCONVENTIONAL USE OF PSYCHOLOGICAL AND BEHAVIORAL APPROACHES IN CANCER TREATMENT

Psychological and behavioral interventions for which an assertion of tumor reduction or life extension is made involve relatively few techniques. As discussed above, these same approaches are also used for helping patients reduce pain or distress, and in most of these cases are not claimed to have a direct anticancer effect. Given the popularity of psychological interventions for a wide range of purposes, the unconventional use of these methods appears to be a relatively small, but quite visible, part of the overall field.

This section summarizes information on the psychological approaches that are most prominently associated with direct anticancer claims in the popular and professional literature. Three techniques are discussed: the psychotherapeutic method developed by Lawrence LeShan, meditation as described by the late Ainslie Meares, and imagery and visualization as developed by the Simontons. These approaches are the best documented examples and are the ones cancer patients are most likely to hear about, even though many other practitioners have adopted and modified them.

There is overlap in practice among imagery, meditation, and a variety of other self-regulation techniques, such as relaxation, hypnosis, and bio-feedback. Hypnosis, for instance, is probably very similar to meditation and imagery in its effect on consciousness (669,844). It is commonly stated in the popular literature that these psychological techniques facilitate the achievement of a particular state of consciousness, and thereby enhance the immune system and the body's natural healing abilities. As discussed in the previous section, PNI research is just beginning to address this issue.

LeShan's Psychotherapy

One of the most prominent examples of an unconventional psychological approach is a form of one-on-one psychotherapy developed by Lawrence LeShan, a researcher and clinical psychologist, as an adjunct to conventional treatment for cancer patients. LeShan's two most prominent books (537,539) explain the basis for his view that patients with advanced, metastatic disease can sometimes undergo tumor regression and can sometimes increase the length and quality of their lives under his psychotherapeutic regimen (538). His conclusions are based on personal experience over several decades with patients he has treated.

LeShan received his Ph.D. from University of Chicago and began clinical research in 1952 at the Institute for Applied Biology in New York. He has published widely in psychological literature. For many years, his research focused on relationships among personality factors, traumatic life events, and cancer onset and progression. In his earlier research, he focused on the notion of a "cancer-prone personality" and concluded that the interplay between personality and events can so weaken the body's cancer defense mechanism that a cancer is likely to appear (537,538,539).

The approach LeShan describes in his 1989 book, *Cancer as a Turning Point*, is a psychotherapeutic process used to identify the creative potential and self-healing ability of each patient. LeShan attempts to develop 'the perception and the expression of the individual's special song to sing in life' and 'the cause of his or her loss of contact with enthusiasm and joy' (537). He describes his method as a process of self-examination and growth that delves deeply into the patient's past in order to 'analyze the blocks

that keep the patient from being able to live out his or her true nature” (537).

Rejecting a traditional Freudian psychoanalytic approach early on in his career (537), LeShan chose instead to find ways of helping cancer patients make their disease a “turning point” in their lives, an opportunity to fulfill their dreams. LeShan explains this guidance toward inner development and fulfillment in the following way:

What is right with this person? What are his (or her) special and unique ways of being, relating, creating, that are his own and natural ways to live? What is his special music to beat out in life, his unique song to sing so that when he is singing it he is glad to get up in the morning and glad to go to bed at night? What style of life would give him zest, enthusiasm, involvement?

How can we work together to find these ways of being, relating, and creating? What has blocked their perception and/or expression in the past? How can we work together so that the person moves more and more in this direction until he is living such a full and zestful life that he has no more time or energy for psychotherapy? (537)

LeShan believes that some cancer patients have undergone tumor regression and have increased the length of their lives as a result of his psychotherapeutic approach. He states his conclusion this way:

Ever since I learned how to use this approach some twenty years ago, approximately half of my “hopeless,” “terminal,” patients have gone into long-term remission and are still alive. The lives of many others seemed longer than standard medical predictions would see as likely. Nearly all found that working in this new way improved the ‘color’ and the emotional tone of their lives and made the last period of their lives far more exciting and interesting than they had been before starting the therapeutic process. (537)

Speculating that the psychotherapy might bring about changes in patients’ immune function, LeShan writes that his treatment is often “sufficient to halt or reverse the direction of growth of a serious neoplasm.’ He believes that “if we recover our hope for the ability to live our own life” our “cancer-defense mechanism [will] recover its strength and come to the aid of the medical program.

As we move toward living this life, [our] own self-healing powers [will] act more strongly and raise our ‘host-resistance’ to the cancer” (537).

Meditation

Meditation can be defined as “any activity that keeps the attention pleasantly anchored in the present moment” (92). Although there are many forms of meditation, one common feature is the absence or near absence of logical thought and emotional experience (608). Different approaches to meditation may consist of quieting the mind, concentrating on a single subject such as breathing or a repeated word, observing passing thoughts, or visualizing active healing processes (a Process similar to the practice of imagery, described below). The purpose of meditating is not primarily to relax, although relaxation may be a side effect of meditating, but to raise awareness, which is seen as the prerequisite to “getting the mind back under control” (92). By calming the body and fixing the mind through ‘dropping the anchor of attention,’ meditation is believed to be an important tool of self-healing and self-regulation (92).

In the 1970s and early 1980s, meditation directed against tumors received public attention as a result of the work of the late Ainslie Meares, an Australian psychiatrist. Meares used a form of meditation aimed at producing a profound stillness of mind (608). He characterized the practice as one of simplicity and naturalness (609). Cancer patients reportedly experienced “a profound and prolonged reduction” in anxiety and a nonverbal understanding of life and death (609). Meares believed that intensive meditation “enabled the immune system to function more effectively by inducing changes in blood supply to particular parts of the body and in endocrine function and neural activity” (610).

Based on his experience treating 73 patients with advanced cancer who attended at least 20 sessions of intensive meditation, Meares believed his treatment reduced anxiety, depression, discomfort, and pain in about half his patients. Meares believed that intensive meditation was associated with tumor regression in at least 10 percent of the advanced cancer patients he treated (607). He also published a number of case reports of regression of cancer after intensive meditation and in the absence of conventional treatment (603,604,605,606). (These cases are summarized in ref. 608.)

Imagery and Visualization

Imagery refers to various psychological techniques that involve the creation and interpretation of mental images (6). It has been described as a tool for communicating with the subconscious mind (583). Imagery can be used as a tool for articulating ideas, beliefs, and experiences and for replacing fears and negative expectations with positive ideas and beliefs. In cancer treatment, guided imagery often consists of visualizing the symbolic destruction of cancer cells and has been used to reinforce patients' beliefs in their ability to recover. Other imagery techniques used in cancer treatment, e.g., gentle imagery, focus on imagining peaceful, pleasant scenes (102). Imagery is often used along with relaxation, meditation, or hypnosis.

A broad psychological approach to cancer treatment centering on the use of imagery was popularized in the 1970s by O. Carl Simonton, a radiation oncologist, and Stephanie Simonton-Atchley, a psychotherapist. The Simontons' best-selling 1978 book, *Getting Well Again* (583), described their clinical experience treating cancer patients with imagery and other psychological approaches at the Cancer Counseling and Research Center in Dallas (continued now at the Simonton Cancer Center in Pacific Palisades, CA). Their regimen was described as a "whole-person approach to cancer treatment" and included interventions designed to "restore the physical, mental, and emotional balance so that the whole person returns to health" (583). The rationale was reportedly based on theories concerning the role of personality characteristics and psychological factors in the etiology of cancer. Relaxation and mental imagery were presented as tools for cancer patients to motivate themselves to recover their health and to make creative changes in other areas of their lives. Overall, the regimen was presented as an adjunctive approach to conventional cancer treatment, but claims for direct antitumor effects were also made (see below).

The process of imagery, as outlined by the Simontons, begins with a period of relaxation. The patient is then instructed to visualize the tumor as a weak, disorganized, soft mass of cells. Conventional treatment is visualized as powerful and effective, capable of shrinking tumors and helping the patient overcome the disease. The patient is encouraged to visualize defending himself or herself against cancer through a strong and aggressive immune system, a

symbol of the body's natural healing processes. White blood cells are visualized as a vast army of defenders easily overwhelming the weak malignant cells. Dead and dying cells are visualized as being flushed out of the body by natural processes, until no more tumor cells remained. The patient is then instructed to imagine himself or herself as healthy, energetic, and fulfilled (583). The Simontons recommended that cancer patients repeat the process three times a day.

According to the Simontons, the process of relaxation and imagery reportedly helped patients lessen fears, tension, and stress; change attitudes; strengthen the will to live; confront depression, hopelessness, and helplessness; and gain a sense of confidence and optimism (583). It was also believed that relaxation and imagery could "effect physical changes, enhancing the immune system and altering the course of a malignancy" (583). The Simontons claimed significant life extension as a result of relaxation and imagery techniques. The claim was apparently based on a preliminary analysis of their patients compared with national statistics, as explained in the following excerpt from *Getting Well Again*:

In the past four years, we have treated 159 patients with a diagnosis of medically incurable malignancy. Sixty-three of the patients are alive, with an average survival time of 24.4 months since the diagnosis. Life expectancy for this group, based on national norms, is 12 months. A matched control population is being developed and preliminary results indicate survival comparable with national norms and less than half the survival time of our patients. With the patients in our study who have died, their average survival time was 20.3 months. In other words, the patients in our study who are alive have lived, on the average, two times longer than patients who received medical treatment alone. Even those patients in the study who have died still lived one and one-half times longer than the control group. (583)

In a 1980 paper describing an uncontrolled, exploratory study, the Simontons used a similar approach to describe outcomes in another, possibly overlapping, series of cancer patients (806). Out of 130 patients with breast, lung, or colon cancer, 75 patients with advanced disease were included in the analysis. Median survival time (the time at which half have died and half are still alive) since diagnosis was 35 months for the 33 breast cancer patients, 21 months for the 18 colon cancer patients, and 14 months for

the 24 lung cancer patients. These survival times were compared to published data on other groups of metastatic breast, colon, and lung cancer patients: 16, 11, and 6 months, respectively. The Simontons noted that their patients lived twice as long as those reported in the literature and speculated that better patient motivation, greater confidence in the treatment, and overall positive expectancy as a result of their regimen may have contributed to the results.

The design of the Simontons' study was such that valid conclusions could not be drawn from it about increased survival as a result of relaxation and imagery, since other possible intervening variables were not accounted for. It is not known how the Simonton patients might have differed in physical and psychological characteristics from the patients with whom they were compared.

ATTEMPTS AT EVALUATING SURVIVAL OUTCOMES

Despite anecdotal reports of tumor regression or life extension in patients treated with imagery, meditation, or Leshan's psychotherapy, possible anticancer effects of these interventions in other patients have not been confirmed. Researchers in this area have, in general, focused more on the evaluation of quality of life issues than on antitumor effects. The few studies that have addressed the issue of survival—one on Bernie Siegel's ECaP program, and two others on different forms of psychotherapy—are summarized in this section.

A study of the ECaP program was conducted in the early 1980s by Hal Morgenstern and colleagues in collaboration with Bernie Siegel (639). The study attempted to assess the impact of the ECaP program on survival of patients with breast cancer. The ECaP program consisted of groups of 8 to 12 participants who met once a week for 90 minutes. Sessions included discussions of patients' problems, meditation, and mental imagery using drawings. The investigators designed a retrospective followup study comparing survival in a group of 34 ECaP participants with a group of 102 nonparticipants. The group of patients to whom the ECaP participants were compared were matched for age at histologic diagnosis, stage of disease, surgery, and course of disease.

The study found a small, but not statistically significant increase in survival time among ECaP participants compared to nonparticipants. As noted in the published report, though, the study did not control for the lag period among ECaP participants from the time of diagnosis to the time of ECaP entry, a period that reportedly ranged from less than 1 month to 10 years. Morgenstern and colleagues used two statistical methods to adjust for this error. In one case, the adjustment produced a result showing a positive effect on survival in these women, and in the other case, a negative effect on survival, neither result being statistically significant.

A more important limitation in interpreting the results of this study is its overall design, in which an attempt was made to control retrospectively for known and unknown differences between the two groups of patients by a matching procedure. Despite the matching, there could still have been major differences in personal characteristics, treatment variables, and disease characteristics that were not or could not have been identified. For this reason, this type of study design is not generally considered acceptable for detecting effects on survival, unless the difference in survival between the treatment and control groups is so great as to outweigh the possible effects of bias or confounding.

The effect of different forms of psychotherapy in women with metastatic breast cancer was evaluated by Ronald Grossarth-Maticcek and colleagues (363). The study included 100 women, 50 of whom chose to receive chemotherapy and 50 of whom refused chemotherapy. Half of each group of 50 was assigned by randomization to receive psychotherapy. Little information is given on how the groups compared in stage at diagnosis, time to entry into the study, and other characteristics after randomization. The investigators found that the women randomized to psychotherapy survived 18.6 months following diagnosis compared with 12.6 months for women randomized to no psychotherapy. The results suggest there may have been a small survival benefit for patients participating in psychotherapy.

Another randomized study evaluating the effect of psychotherapy on survival and quality of life of patients with metastatic breast cancer was recently described by David Spiegel and colleagues (824). In this study, psychotherapy consisted of weekly 90-minute supportive group sessions and self-hypnosis for pain control. The sessions were conducted for 1

year and were led by a psychiatrist or social worker and a therapist who herself had breast cancer in remission. Eighty-six women with metastatic breast cancer, who were also receiving conventional treatment, were randomized to psychotherapy or no psychotherapy (yielding 50 women in the treatment group and 36 in the control group). Patients in the two groups were comparable in age, marital status, type of surgery, degree of metastatic spread, number of mastectomies, exercise activity, and number of treatment courses. The groups did differ in stage of disease at initial diagnosis, with the psychotherapy group having fewer women with advanced disease. That difference was reportedly controlled for in the analysis of the data. Survival was measured 9 years after psychotherapy ended.

There was a significant difference in survival time between the two groups: women who underwent psychotherapy lived an average of 36.6 months after randomization to the intervention, while women in the control group lived an average of 18.9 months following randomization. Divergence in survival time between the two groups began to appear 8 months after psychotherapy ended. Spiegel and colleagues also found that psychotherapy significantly reduced anxiety, depression, and pain among participants. The investigators suggested that in-

volvement in the support group may have allowed patients to better mobilize their resources, to improve compliance with conventional treatment, or to improve their appetite and diet through reduced depression. They also suggested that patients who learned self-hypnosis for pain control may have been better able to remain physically active.

The results of Spiegel's study lend support to the practice of psychotherapy in cancer treatment, but more information is needed before the practice could be adopted confidently on a broader scale. Spiegel's provocative findings are difficult to generalize to other types of psychosocial intervention and other patient populations, since the study included a relatively small number of subjects. One other factor limiting the interpretation of the results is the possibility that other, unidentified variables occurring during the 9-year followup period had some influence on survival time. The women in the study were not contacted after their initial year, and it was not known what other factors, e.g., further conventional treatment or psychosocial support, may have intervened during that time to create more differences between the groups. A larger randomized study will be needed to verify the results, and is clearly warranted by Spiegel's conclusions.