COPING STYLE AND RESPONSE TO RADIATION THERAPY PATIENT EDUCATION

BY

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COPING STYLE AND RESPONSE TO RADIATION THERAPY PATIENT EDUCATION

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This study investigates the effects of a radiation therapy patient education module on patients' treatment-related knowledge and emotional state during the course of radiotherapy. Second, the study explores whether individual differences in coping style will affect patients' cognitive and affective responses to the patient education intervention.

Sixty patients undergoing their first course of radiation therapy were assigned to one of two conditions: Patients in the high information condition saw a twelve-minute slide-tape program which presented sensory and procedural information about radiation therapy; patients in the low information condition received standard care and did not see the patient education program. On the basis of the modified Repression-Sensitization Scale and the Avoider-Vigilant Coper Sentence Completion Test, patients were also classified according to coping style. Outcome measures included an objective test of treatment-related knowledge, self-assessments of knowledge level, and two measures of
affect, the State/Trait Anxiety Inventory and the Profile of Mood States. Patients were assessed at the beginning and at the end of their radiation treatment.

Results indicated that the patient education intervention was effective. Patients in the high information condition showed greater accuracy of treatment-related information at the outset of treatment. The patients who received the intervention also showed less affective distress as treatment drew to a close. The predicted main effect for coping style and the interaction effect (coping style by intervention condition) were not statistically significant. However, the pattern of group means was consistent with predictions in several regards. For instance, repressors and avoiders reported, in absolute terms, less affective distress than sensitizers and vigilant copers. Among the vigilant-sensitizing patients, those who received information appeared to fair better emotionally than those who did not receive the intervention. Highest knowledge scores, in absolute terms, were obtained by sensitizers receiving the patient education intervention; lowest knowledge scores were reported by repressors not receiving the intervention.

The results are discussed in terms of methodological constraints imposed by the field setting, the situation-specific dimensions of coping, and the critical relevance of patient education for persons facing stressful medical procedures.
CHAPTER I
BACKGROUND AND LITERATURE REVIEW

Introduction

This study (a) examines cancer patients' affective responses and knowledge about treatment as they undergo radiation therapy treatment, (b) assesses the effect that introductory patient education materials have on emotional state and fund of information, and (c) explores possible interactions between coping style variables and responses to information provided about medical treatment. In order to place the study in appropriate context, the following topics will be addressed: 1) basic facts and figures about cancer incidence, survival, and treatment interventions (particularly, radiation therapy); 2) key research areas in the fast-developing field of psychosocial aspects of cancer; 3) studies dealing specifically with psychosocial factors in radiation therapy patients; 4) research in psychological preparation for stressful medical procedures; and 5) studies investigating interactions between coping style variables and response to information about medical procedures.

The Challenge of Cancer

Cancer, in its many forms, continues to be an all too common phenomenon. The American Cancer Society (1981) estimates that in 1982 approximately 835,000 people in the United States will be diagnosed as having cancer. (This
figure excludes approximately 400,000 cases of non-melanoma skin cancer and all carcinoma in situ.) About 430,000 individuals will die of the disease this year--1,180 a day, one person every 73 seconds. Of Americans now living, one in four--almost 58 million Americans--will eventually have cancer, according to current rates. On the brighter side, important advances in detection and treatment of cancer have lowered the death rates for several forms of cancer and considerably extended survival periods for many patients. Consider the following facts: 1) over 3 million Americans are alive today who have had a history of cancer, 2 million of them having been diagnosed more than five years ago, and 2) of the 835,000 persons diagnosed this year, approximately 278,000 (about one-third of those diagnosed) will survive for five years or more. (When survival rates are adjusted for normal life expectancy factors (i.e., when other causes of death in this population are taken into consideration), 41 percent of patients diagnosed with cancer, across sites, will survive for five years or more.) In addition, with earlier diagnosis and prompt medical treatment with modalities available today, the lives of about 139,000 individuals who will die of cancer this year could have been saved.
Cancer treatment is a rapidly changing field of medical endeavor. The three major forms of treatment—surgery, radiation therapy, and chemotherapy—may be used singly or in various combinations. Experimental treatments include new developments in the three standard treatments, as well as treatments using immunotherapy, hormone therapy, hyperthermia, and bone marrow transplants, to cite but a few examples.

Radiation therapy, the therapeutic modality being used to treat the patients in the present study, is the second most common form of cancer treatment. Approximately half of all cancer patients receive radiation for either curative or palliative purposes at some point in the course of their disease. Radiation therapy techniques can be broadly divided into two groups: external radiation and internal radiation. (All patients in the present study were treated with external source irradiation.) The so-called "megavoltage" or "supervoltage" machines used to deliver high energy radiation in contemporary radiation oncology settings include a) linear accelerators, which produce high-speed gamma rays; b) neutron radiation machines and betatrons, which beam high-speed neutrons or atomic particles into tumors; and c) machines which utilize cobalt as an energy source. Treatment schedules vary, depending on the particular diagnoses, tumor location, total dose needed, and other factors. However, treatments are usually given


five days per week and average about four to five weeks. Side effects of treatment vary greatly depending on type of radiation therapy administered, part of body irradiated, total dose, scheduling factors, and individual patient differences.

**Psychosocial Aspects of Cancer: An Overview**

With increased survival times for many cancer patients and the advent of more complex and extended treatment regimens, medical personnel and behavioral scientists have begun to give more attention to the psychosocial aspects of living with cancer. No longer are issues related to terminal care and bereavement the only concerns for those dealing with the psychosocial dimensions of cancer. Instead, the field has broadened considerably to include a wide spectrum of issues which confront patients and their families as they try to cope with the disease and its treatment, throughout its many phases.

In recent years the field of psychosocial oncology has grown rapidly, not only in terms of the number and variety of publications, but also with regard to the methodological sophistication reflected in the studies. The recent outpouring of books on this topic attests to the growing interest and activity in the area (e.g., Ahmed, 1981; Blumberg, Flaherty, & Lewis, 1980; Cassileth, 1979; Cohen, Cullen, & Martin, 1982; Cullen, Fox, & Isom, 1976;
Kellerman, 1980; Spinetta & Deasy-Spinetta, 1981; and Weisman, 1979; to cite but a few). A recent review of the professional literature by Freidenbergs et al. (1981-82) cites over 100 articles and monographs dealing with psychosocial aspects of cancer in adult patients.

Until recently, however, the field was dominated by anecdotal reports and uncontrolled clinical observations. It has only been in the last few years that researchers have begun to document the psychosocial difficulties of cancer patients and their significant others with more objective, standardized techniques and to evaluate interventions in a controlled fashion.

Because of the breadth of the field, this review shall be confined to empirically-based investigations focused on adult patients. Although not every article can be discussed, an attempt shall be made to delineate the major domains of psychosocial research and to discuss representative studies in each area. The intent here is to outline the scope of work in this field to date and to summarize the more important findings. Let us begin by briefly noting the major threats and coping challenges presented by the illness.

Coping Challenges Presented by Cancer

As we have already noted, cancer is a complex set of diseases, presenting itself in different stages, taking a variety of clinical courses, and treated by diverse methods.
Thus the coping challenges confronting patients can vary greatly.

On the physical plane cancer often entails an enormous burden. The threat of death itself is present for many patients (approximately 60%, across sites, eventually die of their disease). Even those for whom the prognosis is relatively good can be very concerned about the possibility of dying. Though pain is usually well controlled today through medications and other means, many patients will experience acute and/or chronic pain at some juncture in the illness, and almost all patients fear the possibility of unrelieved pain. Physical disfigurement is an unfortunate by-product of many treatments. Consider for example, patients undergoing mastectomies, limb amputations, operations in the head and neck region, or other major surgeries. Chemotherapy and radiation therapy can be accompanied by unpleasant, and sometimes quite disabiling, side-effects. These include nausea, vomiting, anorexia, alopecia, fatigue, weakness, and other symptoms. Depending on the site of the disease and the treatments necessary, physical capacities such as speech, physical mobility, bladder and bowel function, sexual functioning, and sensory capacities can be compromised or altered. Beyond the physical assault, cancer, like other chronic diseases, may entail lengthy hospital stays, enforced dependence,
separation from one's normal environment and social milieu, and repeated interactions with medical personnel and institutions. Vocational, educational, and/or avocational pursuits may be interrupted or halted altogether. And not least of the patient's worries is the financial burden presented by catastrophic illness. This list could be extended, but suffice it to say that bearing cancer is usually an arduous and stressful task, taxing the coping resources of patient and family alike.

Given this state of affairs, how do individuals respond psychologically and what psychological interventions can be helpful in preventing or ameliorating these problems? Essentially, these are the broad questions which psychosocial researchers have begun to investigate. We shall discuss several studies dealing with each domain: impact of the disease and psychological interventions.

**Emotional Impact of the Disease**

The emotional morbidity of cancer patients has been investigated by numerous researchers. Craig and Abeloff (1974), for instance, found that, on the basis of the Self-Report of Symptoms Inventory (SCL-90), 50% of leukemia and lymphoma patients surveyed were depressed, and 30% were anxious. However, Worden and Weisman (1977) reported that among 40 newly diagnosed breast cancer patients only 20% reported being depressed (based on the MMPI, the Profile of Mood States (POMS), and clinical ratings). When cancer
patients are compared to other groups (e.g., other medical patients, healthy subjects, psychiatric samples, etc.), results are mixed. For instance, Koenig et al. (1967) found that 36 colo-rectal cancer patients manifested less emotional distress in responses to the MMPI than a group of patients hospitalized for depression and a group of tuberculosis patients. Beck Depression Inventory scores for 97 cancer patients (varying sites) with advanced disease were not significantly different than scores obtained by the patients' next of kin, and they showed less depression than hospitalized suicidal patients (Plumb & Holland, 1977). On the other hand, when breast cancer patients were compared to general surgery patients (Lee & Maguire, 1975) and to women with benign breast tumors (Maguire, 1978; Morris, Greer, & White, 1977), in both cases the cancer patients exhibited significantly more anxiety and depression.

It is fair to surmise that reliable base rates for emotional disturbance in cancer patient groups have not yet been established, nor is it clear how cancer patients stand on these dimensions relative to other groups of interest. Furthermore, most research to date has focused on psychosocial dysfunction and largely ignored more positive dimensions of coping (cf. Rainey & Cullen, 1981). Empirical documentation of affective states of various cancer patient groups is still in a nascent stage, though, as we have seen,
researchers are beginning to utilize more objective means to assess these factors. Teasing out the exact contribution of disease-related factors (site, stage, time since diagnosis, prognosis, etc.) and many treatment-related factors (whether hospitalized, major modality of treatment, specific drug effects, etc.) awaits further research.

**Emotional Response to Cancer Treatment**

The one treatment that has received the most extensive examination by psychosocial researchers, to date, is mastectomy. This is understandable in that breast cancer is the most frequent cancer in women and because of the obviously disfiguring effect of this treatment. We have already cited, in the foregoing section, several studies dealing with anxiety and depression experienced by women who have had mastectomies for breast cancer. Several other life changes accompanying the disease have also been described. For instance, Maguire (1978) found that mastectomy patients experienced more sexual problems than did a control group of benign breast tumor patients at four months postoperatively (40% vs. 11%) and at one year postoperatively (33% vs. 8%). A questionnaire study of 31 husbands of mastectomy patients (Wellisch, Jameson, & Pasnau, 1978) revealed frequent reports of decreased sexual satisfaction since the wives' operations. Generally decreased activity levels among breast cancer patients, particularly in the weeks immediately following surgery, have been documented by
Eisenberg and Goldenberg (1966). However, follow-up studies of women five years after their mastectomies (Schottenfeld & Robbins, 1970; Craig, Comstock, & Geiser, 1974) show that a high percentage of these women eventually return to preoperative employment and activity levels.

Meyerowitz (1980), who has comprehensively reviewed the literature on psychological correlates of breast cancer, summarizes the typical responses in this group as "(a) Some degree of depression, anxiety, and/or anger; (b) some disruption in everyday life patterns, including marital and/or sexual relationships; and (c) considerable fear regarding the danger and mutilation of cancer and mastectomy" (p. 114). Variables observed to affect intensity and duration of psychosocial impact, as summarized by Meyerowitz, include the patient's age, preoperative expectations, importance of physical appearance and the breast to the patient, quality of preoperative preparation by surgeon, quality of marital support, time passed since surgery, and presence of additional medical treatments (radiotherapy, chemotherapy). Other types of surgery have not been studied nearly as much, though a few examples exist such as Davis and Beumont's (1973) study of laryngectomies and work by Brown et al. (1972) with pelvic exenteration patients.
When one turns to other forms of treatment, a relative paucity of studies documenting the psychosocial impact of treatment is found. Some work has been done recently on the effects of chemotherapy treatments on the quality of life (e.g., Meyerowitz et al., 1979), though it has been very hard to separate the effects of chemotherapy itself from other disease- and treatment-related variables. Another recent interest has been to understand possible neuropsychological problems associated with lengthy chemotherapeutic regimens (e.g., Peterson & Popkin, 1980; Silberfarb et al., 1980). (The psychosocial studies done to date on patients receiving radiation therapy will be reviewed in a following section.) One must agree with the conclusion of Freidenbergs et al. (1981-82) that "clearly more studies are needed to adequately assess the impact of the various medical treatments on the cancer patient" (p. 307).

**Other Areas of Psychosocial Impact**

The psychosocial sequelae of cancer include much more than emotional disruption. Other areas of life functioning and social interaction may also be affected adversely. Various surveys (Feldman, 1978; Wheatly et al., 1974) suggest that a substantial number of cancer patients experience denial of work, job discrimination, or other vocational difficulty. Though many clinicians have noted the impact that cancer can have for the family members
(e.g., Bloom, 1982; Kaplan, 1982; Vettese, 1981) relatively little careful documentation and empirical investigation of this dimension of living with cancer have been done. Krant and Johnston (1977-78) found very limited communications between family members of late stage cancer patients. Leiber et al. (1976), studying sexual and affectional needs of advanced cancer patients and their mates, found that, whereas desires for sexual intimacy decreased in 37% of the patients, approximately half of the patients desired more non-sexual physical closeness with their partners. The study of husbands of mastectomy patients by Wellisch et al. (1978) also found that these men often reported psychosomatic complaints and work difficulties due to problems in concentrating and preoccupation with thoughts about their partners. The myriad repercussions of the disease for children of adult patients and for the entire family constellation have not yet received sufficient attention.1

**Psychosocial Response Across the Course of Disease**

How does psychosocial impact change across the course of the disease? Holland (1973) has discussed the widely varying clinical courses that cancer can take and the accompanying variability in psychosocial implications. However, very few prospective, longitudinal investigations

1 It is interesting to note that psychosocial researchers in pediatric oncology have attended more closely to the impact of the disease on the family system (cf. Morrow et al., 1981; Powzeck et al., 1980).
have been launched. Gordon et al. (1980) followed 308 breast, lung, and melanoma patients through the first 6 months of their disease. The most often noted problems at the time of initial hospitalization were in the area of worry about disease itself. Negative affect became the predominant concern in the period following discharge. Later, at 3 months and 6 months post-discharge, a broader array of problems was noted: physical discomfort, concern about medical treatment, dissatisfaction with health care service, mobility, financial concerns, family and social problems, worry about disease, negative affect, and body image difficulties.

Morris, Greer, and White (1977), studying psychosocial adjustment of 61 breast cancer patients over a two-year span, found that, at two years posttreatment, 83% of the breast cancer patients had the same ratings of marital adjustment as at the preoperative interview; work adjustment had also improved demonstrably over this period.

Weisman and Worden (1977) found that site of cancer was a significant factor in adjustment. Different site groups (lung, breast, colon, melanoma, Hodgkin's) had peak distress periods at different times during the first 100 days of their illness. These data suggest, as one would expect, that passage of time alone does not determine psychological response; rather, there are complex interactions between individual psychological factors, disease site and stage,
and treatment variables which affect psychological and social status.

Patient Variables Related to Psychosocial Adjustment

Among cancer patients, who is "at risk" for psychosocial difficulties? What variables account for good versus poor adjustment to disease? These questions have led investigators to develop profiles of "high risk" patients and attempt to predict later distress.

The extent to which medical data are useful in predicting psychosocial difficulties is unclear. Weisman and Worden (1977) reported that medical data (staging of disease, prognosis, etc.) collected at the time of initial hospitalization accounted for 40-60% of the variance in psychosocial distress ratings 6 months later. Studies by Schonfield (1972), Morris et al. (1977), and Meyerowitz et al. (1979), by way of contrast, found little correlation between disease/treatment variables and later adjustment ratings. Gordon et al. (1980) found that only 12% of the variance in problems reported 6 months post-hospitalization could be accounted for by medical data alone. Freidenbergs et al. (1981-82) speculate that these discrepancies in findings may be due to different forms of assessment (examiner ratings versus self-report) used by different research teams.

Psychological tests have shown some utility in predicting later adaptation levels in cancer patients. Sobel
and Worden (1979) utilized MMPI profiles obtained from 133 newly diagnosed patients (various sites) and found that MMPI profiles alone could account for a majority of the variance in "vulnerability" ratings at 6 months post-diagnosis. Lower Morale Loss Scale scores (from the MMPI) and lower anxiety scores (Cattell's Self Analysis Form) at the time of diagnosis were predictive of return to work for a group of 42 patients (various sites) studied by Schonfield (1972).

A related approach has been to describe adaptive and maladaptive patient coping strategies. Most notable in this regard is a series of longitudinal studies at Massachusetts General Hospital (Weisman & Worden, 1976-77; Weisman & Worden, 1977; Weisman, Worden & Sobel, 1980). Studying a wide cross section of patients longitudinally from the point of diagnosis, they found that "good copers" (i.e., those manifesting better ratings on a cluster of self-report and interviewer rating scales throughout the course of the disease) tended to realistically face facts, focus on some favorable component(s) of their situation, and then confidently comply with doctor's recommendations. By contrast, "poor copers" used suppression, passivity, stoic submission, various tension reducing measures, social withdrawal, and blaming.
Psychological Intervention Studies

Anecdotal reports and theoretical discussions of psychosocial interventions for cancer patients abound. The roles of nurses (George, 1973; Tiedt, 1973; Rainey, 1981b; Vachon et al., 1978), social workers (Barstow, 1982; Harper, 1975), specially trained oncology counselors (Gordon et al., 1980), and multidisciplinary teams (Cromes, 1978; Izsak et al., 1973; Lansky et al., 1976; Pfefferbaum et al., 1977-78; Wieder et al., 1978) have been described. Various therapeutic approaches which have been implemented include supportive group psychotherapy (Herzoff, 1979; Wellisch et al., 1978; Whitman et al., 1979; Yalom & Greaves, 1977), family therapy (Cohen & Wellisch, 1978; Kaplan, 1982), home care programs (Izsak et al., 1973; Wellisch et al., in press; Yates et al., 1977), telephone help lines (Kramer et al., 1981; Rainey, 1981a), community-based self-help groups (Garfield & Clark, 1978), sex therapy (Witkin, 1975; Mantell, 1982), and relaxation and imagery training (Simonton & Simonton, 1975; Simonton et al., 1980). Psychosocial training programs for health professionals designed to sensitize them to the needs of cancer patients and to prepare them to provide basic psychosocial services have been reported by Richards and Schmale (1974) and Rainey and Wellisch (1981).

Despite the apparent widespread interest in psychosocial services in oncology settings, empirical
research on the efficacy of psychological interventions remains scant. (An encouraging note is that several large scale psychosocial intervention evaluations, funded by the National Cancer Institute, are now underway and promise to yield much valuable information in years to come.)

One already completed, relatively large-scale study (Gordon et al., 1980) reported promising results. One hundred fifty-seven cancer patients (breast, lung, and melanoma) received a systematic psychosocial intervention program which included patient education, supportive counseling, and "environmental manipulations" (physician consultation, rehabilitation referrals, etc.). Psychosocial treatment was administered by a specially trained social worker, psychologist, or psychiatric nurse. A control group of 151 patients received only the evaluation component of the program (multiple evaluations over a one-year period). Among other findings, the intervention group "... evidenced a more rapid decline of negative affect (i.e., anxiety, hostility, depression), a more realistic outlook on life, a greater proportion of return to previous vocational status, and more active pattern of time usage than patients in the control group" (p. 743).

In another carefully controlled, longitudinal, intervention study, Weisman et al. (1980) found that both of two intervention conditions (Intervention A: short-term,
problem-oriented psychiatric consultation; Intervention B: short-term, cognitive-behavioral, stress management training) were superior to the control condition (evaluation only) on indices of mood disturbance and interviewers' ratings of emotional vulnerability. An important additional feature of this study was that the interventions were targeted for "high risk" patients as identified by a previously developed psychosocial screening battery.

There have been few controlled, empirically-based studies of counseling with terminal patients. However, there is some evidence for the value of supportive counseling with this group of patients. Linn et al. (1982) randomly assigned 120 men with end-stage cancer (various primary sites) to an intervention condition (ongoing, client-centered supportive therapy) or to a control condition (evaluation only). Patients were assessed before assignment to treatment arm and at one, three, six, and twelve months. Measures included quality of life variables (depression, alienation, life satisfaction, and self-esteem), functional status, and survival time. Functional status and survival did not differ between groups, but patients receiving counseling showed significantly better quality of life scores at three months. Among those who survived, these differences held up through the one year follow-up. Since "quality of life" issues are key concerns for incurable patients, these findings are important.
Supportive group therapy for women with metastatic breast cancer was evaluated by Spiegel, Bloom, and Yalom (1981). Weekly discussions focused on practical coping problems associated with terminal illness, feelings and attitudes toward death, and interpersonal relationships with family, friends, and physicians. Patients were assessed at four-month intervals for a one-year period. As compared to control patients, those receiving the intervention showed significantly lower total mood disturbance, had fewer maladaptive coping responses, and were less phobic.

More narrowly focused, yet nonetheless interesting, recent work has evaluated the effectiveness of relaxation training and guided imagery (Burrish & Lyles, 1981; Lyles et al., 1982) and hypnotherapy (Dempster et al., 1976; Redd et al., 1982) for controlling chemotherapy-induced nausea and vomiting, as well as conditioned, anticipatory nausea which plagues many patients.

Though not great in number, these studies report promising results. As with psychotherapy research in general, the pertinent question is not, "Does psychological intervention help?" but "What interventions, directed toward what ends, with what patients, and administered by whom, are effective?"
Psychosocial Aspects of Radiation Therapy

Approximately half of all cancer patients receive radiation for either palliative or curative purposes at some point in the course of their disease. At least 350,000 cancer patients receive radiotherapy each year. Although radiation therapy has been and remains one of the three major treatment modalities for cancer, its impact on patients' psychological status has remained relatively unexplored. This has been an unfortunate oversight since radiation therapy can be the source of many fears and considerable emotional distress to many patients. As Rotman et al. (1977) have stated, "Few therapeutic modalities in medicine induce more misunderstanding, confusion, and apprehension, than the use of irradiation in cancer treatment. The prospect of radiation therapy adds considerably to the fears already generated by the diagnosis of cancer, heightening the need for effective doctor/patient communication" (p. 744). Among the more manifest concerns observed clinically in patients undergoing radiation therapy, these authors add, are fears related to death, pain, "being burned" or disfigured, and loss or compromise of bodily functions. Patients or family members may perceive radiation therapy as a futile procedure in a hopeless situation, and some even believe patients will become radioactive and contaminated. If anything, fears and misunderstandings about radiation therapy have been
exacerbated in recent years with the widespread publicity given to links between radiation exposure and the development of cancer. There is an obvious need in the radiation therapy setting for correction of common misunderstandings, dissemination of accurate information about how radiation does control malignancies, and appropriate reassurance related to the fears that patients express.

Until the mid-seventies there were no published reports on psychological reactions to radiation treatment. Peck and Boland (1977) published the first study in the area, reporting the results of structured psychiatric interviews, before and after treatment, with fifty radiation therapy patients (various diagnoses). Initial interviews focusing on what patients had been told when referred for radiation treatment and their attitude toward it disclosed that only 60% had been told by their referring doctor that they had cancer, and "... all arrived at the treatment center unprepared for the frequency, number, and procedure of treatment and for the efficacy of treatment by radiation" (p. 180). Ill-informed about their treatments, the majority of patients also held negative attitudes toward radiotherapy. Few expected it to be curative, most regarded the referral as bad news (a "last resort," "sure sign that surgery didn't get it al," etc.), and many feared radiation as inherently damaging or carcinogenic. With regard to
emotional status, thirty-one (62%) were judged by the interviewing psychiatrist to manifest depressed mood; ten (20%) showed clinical signs of mild to moderate depressive reactions. Two-thirds of the patients were noticeably anxious, with three (6%) having clinically significant anxiety states.

The second interview occurred at the end of treatment when physical reactions to treatment were greatest, undoubtedly adding to the distress felt by the patients. Eight percent of patients were judged to have a mild to moderate anxiety reaction, and 74% were judged to be mildly to moderately depressed. When asked their opinion of the result of treatment, only 30% felt that they had improved; 46% thought their condition had not changed; and 24% considered their condition to have deteriorated. Peck and Boland comment: "Patients suffer irrational fears of damage and death because of erroneous preconceptions of radiation which doctors fail to correct. Ironically, the lay and medical concept of dismal manifestations and futility of radiation treatment are entirely false. In this series, only one patient suffered damage due to radiation. Sixty percent were free of signs of cancer at follow-up 18-36 months later" (p. 180).

Holland et al. (1979) assessed emotional response to adjuvant radiotherapy in breast cancer patients receiving radiotherapy following mastectomy. Using the Gottschalk-
Gleser Content Analysis of verbal samples, these researchers found that women undergoing a regimen of radiotherapy exhibited higher levels of overall anxiety and hostility-inward (depression) than those reported for several other groups of medically ill patients. In addition, overall anxiety scores for the radiotherapy patients were found to be even higher than published norms for hospitalized and ambulatory psychiatric patients. Looking at affective score patterns across the course of six weeks of treatment, it was found that patients were most fearful and anxious when they began radiotherapy. However, it was also found that some forms of dysphoric affect actually increased across the course of treatment. Like Peck and Boland (1977), Holland et al. attributed this, in part, to unpleasantness associated with side effects of treatment, which tend to mount as the treatment progresses, and to concerns about terminating active treatment and separating from the treatment staff. Thus, it was suggested that it is important to attend to patients' psychological state not only at the beginning of treatment but throughout the course of therapy. Nonetheless, the point of highest overall anxiety was at the beginning of treatment; this led to a recommendation for orientation sessions in which new patients would be given introductory information about the personnel, procedures, and treatment equipment which they would soon encounter.
Forester et al. (1978) evaluated the psychological status of two hundred radiotherapy patients, half of whom received betatron therapy and half of whom received linear accelerator radiation therapy. Using a modified form of the Schedule for Affective Disorders, these investigators found the incidence and severity of anxiety and depression to be high in both groups, though somewhat lower than anxiety and depression levels in a psychiatric inpatient comparison group. Affective patterns across the course of therapy differed as a function of specific type of radiation treatment: affective distress scores tended to increase across the course of therapy for the betatron group and decrease for the linear accelerator group. The authors suggest that the linear accelerator treatment might have been less distressing due to the quieter operation of this machine and due to the fact that treatment sessions are much shorter with the linear accelerator. It was also found that patients who at the outset of treatment were able either to deny their illness or claim honest ignorance showed significantly less psychologic distress. This suggests that denial can be a relatively effective coping mechanism, at least within certain limits. However, denial may be increasingly difficult to maintain as the disease and treatment regimens continue over time.

Cassileth et al. (1980) examined 160 new and experienced radiation therapy patients' knowledge of
radiation therapy, expectations about treatment, self-assessment of adequacy of their knowledge, and desire for additional information. Almost all patients (92%) were able to accurately identify their diagnosis. (This is considerably more than the 60% noted just a few years earlier by Peck and Boland (1977).) However, knowledge about radiation therapy was more limited. Only 55% of new patients and 71% of experienced patients correctly identified (multiple choice format) how radiation therapy works. Over half of all new patients incorrectly stated that radiation therapy is painful, and 11% of the total sample incorrectly thought that the radiation therapy they received would be harmful to others. Patients' self-assessment of how well-informed they were was also elicited by questionnaire. Relatively few new patients felt well-informed about radiation therapy procedures, about treatment side effects, and about what radiation therapy could do for their illness. In regard to the desire for additional information, it was found that 67% of the experienced patients as well as 72% of the new patients wanted to know more about radiation therapy. The authors indicate in their discussion that "Patients' desire for information about radiation therapy appears to be as much a function of psychological coping mechanisms as of lack of information" (p. 496). This is indicated, for instance, by the fact that even among highly knowledgeable, experienced patients, over
two-thirds still wanted more information about radiation therapy. Additionally, 36% of the sample did not want to know in advance of treatment what the radiation therapy room looks like, and 31% of patients did not want to know more about radiation therapy. Cassileth notes that in an unpublished, analogous pilot study of patients in an outpatient chemotherapy clinic, 45% of those interviewed said they did not want additional information about the disease, prognosis, or treatment. In the opinion of Cassileth et al., these seemingly confusing findings—i.e., knowledgeable patients wanting more information, and some unknowledgeable patients not wanting information—may reflect individual differences in preferred manner of handling stressful situations.

Taken as a whole, the handful of extant studies on psychosocial dimensions of radiation therapy indicate a substantial amount of emotional distress among these patients, both at the outset and across the course of treatment. In addition, many patients appear to lack an accurate, comprehensive understanding about radiation therapy treatment procedures. Some observers (e.g., Peck & Boland, 1977; Holland et al., 1979) note that lack of accurate information and frank misconceptions may feed anxiety and other forms of emotional distress in these patients. However, it must also be remembered that, according to the survey by Cassileth et al. (1980), desire
for more treatment-related information is not universal among these patients.

Preparation for Stressful Medical Procedures

Psychological preparation of patients for stressful medical procedures has been an active area of behavioral medicine research for the past twenty-five years. A broad range of intervention techniques has been utilized in efforts to reduce the aversiveness of medical procedures. Likewise, researchers have designed interventions for a variety of different medical procedures, though preparation for surgery has been the most active category. In a recent review of the area, Kendall and Watson (1981) divide the various intervention strategies into seven broad categories: (1) psychological support, (2) skills training, (3) hypnosis, (4) relaxation training, (5) filmed modeling, (6) cognitive-behavioral interventions, and (7) information provision. I shall utilize this schema to provide an overview of the field. It should be noted at the outset that these categories are not, of course, wholly discrete; many interventions intentionally combine more than one type of preparation strategy. However, the categorization does provide some structure to the field. I shall illustrate each category briefly, focusing more intently on "information provision," since the present study utilizes that strategy.
Psychological Support

Probably the earliest strategy to develop, psychological support includes methods such as brief psychotherapy, group discussions to ventilate fears and concerns, and play therapy with children. The unifying theme of these methods is reassurance and support.

For instance, Lucas (1976), studying heart surgery patients, utilized four preoperative intervention conditions: (1) patients asked to actively focus on plans for recovery and future life, (2) patients asked to merely think about recovery and future plans, (3) a therapist-attention placebo group, and (4) a no-treatment group. The results showed that the first three groups had better post-surgical recovery than did the no-treatment controls, but the three intervention conditions did not differ significantly from each other.

Schmitt and Woolridge (1973) combined psychological support (small group discussions prior to surgery, plus a brief one-to-one counseling session the morning of surgery) with information provision (procedural and behavioral information). Patients receiving this intervention, as compared to controls ("normal hospital procedure"), slept better prior to surgery, reported less anxiety on the day of surgery, had less difficulty in urinary retention and voiding, took less medication on the second and third day
postoperatively, resumed an oral diet sooner; and were discharged sooner.

However, other studies utilizing general psychological support interventions prior to surgery have not had positive results (e.g., Lindeman & Stetzer, 1973; Surman et al., 1974). Kendall and Watson (1981) conclude that studies to date "... provide no unequivocal evidence supporting the efficacy of psychological support for adult medical patients" (p. 201).

Skills Training

Sometimes specific behaviors can be taught which will facilitate patient adjustment. For instance, a patient can be taught how to cough, do leg exercises, turn properly in bed, and perform other skills related to the particular procedure being utilized.

Lindeman and Van Aernam (1971) provided "structured teaching" (diaphragmatic breathing, leg and foot exercises, and coughing and turning techniques) to their intervention group, whereas other presurgical patients received only normal preoperative teaching provided by nursing staff. Although the two groups did not differ in the number of postoperative analgesics needed, the intervention group spent significantly fewer days in the hospital. In a separate study Lindeman (1972) again confirmed the value of this type of intervention, but found a significant
interaction between incisional site and teaching effectiveness. Patients receiving incisions in the chest and lower abdomen did not respond nearly so well to teaching as did other incisional sites. This illustrates how treatment-specific the benefits of a particular intervention strategy can be.

It appears that skills training is most effective, when it works at all, in getting the patient back on a normal schedule and out of the hospital quickly. It has not been shown to be helpful in reducing patients' anxiety and subjective distress.

Hypnosis

Though hypnosis has had a long and colorful history, there are few published empirical studies applying these techniques for medical procedure preparation. To prepare orthopedic surgery patients, Field (1974) used a 20-minute recorded tape which included "hypnotic preparation" in addition to a description of the surgical procedures. Control subjects heard a tape about hospital facilities. No group differences were found on postoperative indices. McAmmond et al. (1971) compared hypnosis and systematic relaxation in reducing anxiety of severely stressed dental patients. Both intervention conditions showed lower anxiety in terms of skin conductance, but self-report measures of anxiety did not differ between intervention and control subjects. Pain tolerance did not differ between groups, but
on follow-up five months after treatment, significantly more hypnosis patients had seen a dentist than patients in other groups. Kendall and Watson (1981) conclude that in this area, the data are weak and the studies few. They suggest that future hypnosis researchers need to use more potent interventions (e.g., individual induction with hypnotist present) and screen subjects with hypnosis susceptibility scales.

Very recently, a few reports have appeared applying hypnosis to cancer patients. For instance, Redd et al. (1982) have reported positive results in reducing conditioned nausea in chemotherapy patients. Spiegel et al. (1981) have reported increased pain tolerance and lessened subjective distress in children who have had hypnotic preparation for bone marrow punctures. In both cases, hypnotic inductions were administered personally and multiple training sessions were utilized. These promising results warrant further investigation.

Relaxation Training

Progressive relaxation training has been used with success in a number of medical procedure preparation studies. Miller (1976), for instance, used EMG feedback and progressive relaxation training for patients with histories of negative reaction to dental treatment. Self-reports on state anxiety (State-Trait Anxiety Inventory), the Dental
Anxiety Scale, and EMG levels decreased significantly for both treatment groups, but not for controls.

With elective surgery patients (cholecystectomy and abdominal hysterectomy), Wilson (1981) compared information provision to relaxation training. Relaxation reduced hospital stay, subjective ratings of pain, and medication used for pain, as well as increased strength, energy, and postoperative epinephrin levels. The patients in the information only condition had reduced length of hospital stays.

Less clear cut results, however, have been found in two studies utilizing relaxation training for cardiac surgery patients. Pearson (1976) found no evidence of intervention efficacy on a number of physiological, behavioral, and subjective mood state variables. Relaxation condition patients did, however, use less drugs postoperatively. Aiken and Henrichs (1971) conducted extensive relaxation training with patients prior to cardiac surgery. They found no significant difference between treatment patients and controls in number of postoperative psychiatric reactions.

Overall, relaxation training appears to be quite effective in facilitating patients recovery, especially in less catastrophic medical procedures.

Filmed Modeling

Rather strong evidence exists for the efficacy of filmed modeling (sometimes called observational learning or
vicarious learning) to aid adjustment of patients undergoing any of several different medical examination and treatment procedures.

Shipley et al. (1978) utilized a 18-minute videotape of a patient undergoing endoscopic examination with patients scheduled for this procedure. One group saw the tape three times, another group saw it only once, and control patients saw an unrelated videotape. All patients received extensive procedural and sensory information. No group differences were found in heart rate at baseline, one minute after insertion, nor following the procedure. However, heart rate was significantly lower five minutes after insertion for the group who had three tape viewings. In addition, physicians and nurses rated this group as less anxious before and during the examination. Anxiety self-report (A-State) scores were the same for all groups during the exam, but lower for both treatment groups following the procedure. Finally, significantly fewer patients in the three-exposure group required diazapan (anxiety-reducing medication) than patients in the other two conditions. A later study (Shipley et al., 1979) produced similar results with experienced patients undergoing repeat endoscopic examinations. (In a later section, we shall note findings of these studies related to interactions between coping style differences and preparation method.)
Melamed and Siegel (1975) demonstrated the effectiveness of a filmed model as a preparatory intervention for children undergoing surgical procedures. The study showed significant, favorable results on pre- and postoperative physiological, self-report, and observer ratings of anxiety. A similar model was used by Melamed et al. (1975) for children in a dental situation. Although no differences between prepared and control subjects were found on self-report or physiological measures of anxiety, both observers and dentists rated the control subjects as considerably more fearful and as engaging in more disruptive behaviors during the tooth restoration procedures.

Kendall and Watson (1981) note that these studies (as well as other similar ones) provide "strong support for the usefulness of filmed modeling interventions" (p. 213), but note that those positive results have been obtained for patients facing less severe medical interventions (e.g., dental procedures, minor surgery, endoscopy).

**Cognitive-Behavioral Interventions**

One of the newest approaches, cognitive-behavioral interventions are characterized by attempts to alter patients' self-statements as well as their behaviors. Illustrative of this method is the study by Kendall et al. (1979) which compared the effectiveness of two interventions for reducing stress for cardiac catheterization patients. For the cognitive-behavioral intervention, therapists
trained patients to a) identify aspects of the hospital experience which were stressful to them; b) identify methods they themselves had used to reduce previous stressors; c) think about ways these methods could be applied to the current stressors in the hospital; and d) rehearse the process of identifying anxiety-producing cues and applying one's own coping strategies to lessen stress. A second intervention condition, patient education, provided written and verbal instruction about heart disease and catheterization procedure. Other patients were assigned to either a time-matched, attention placebo group or to a no-treatment control group. During catheterization both treatment groups had lower anxiety state scores than did either control group. On behavioral ratings of tension, anxiety, cooperativeness, and adjustment during the procedure, both physicians and technicians rated the cognitive-behavioral group significantly better adjusted than the information only group, which was, in turn, rated better than the two control groups. Though these results are very positive, this approach, as applied in medical settings, is quite new and needs further investigation.

**Information Provision**

Among the several approaches to preparation for stressful medical procedures, information provision has been the most extensively investigated. We have already observed
in the foregoing section that several studies investigating other procedures have also included information provision. In fact, in most medical settings provision of a certain amount of procedural information is considered an essential, routine component of good medical practice. Several investigators have, however, tried to study directly the usefulness of different types and amounts of information.

A commonly made distinction in this context is that between procedural information and sensory information. The former refers to information about the medical procedure itself, mortality rates, etc.; the latter refers to information about actual sensations the patient can expect to feel. The two types of information, though conceptually distinct, are often utilized together in preparatory patient education messages.

With regard to procedural information, little, if any, effect on reducing anxiety was found by Vernon and Bigelow (1974) who provided detailed, preoperative information to male patients undergoing hernia repairs. Though the intervention patients did learn more about their operations, their self-report anxiety scores were not significantly different than control subjects. However, the patient group as a whole reported quite low anxiety scores, making it difficult to further lower anxiety ratings.

For patients undergoing intraabdominal operations, Egbert et al. (1964) utilized a combination of procedural
and sensory information plus pain-reducing behavioral training (relaxation skills, turning procedures, etc.). Patients receiving this intervention spent fewer days in the hospital postoperatively, used fewer narcotics following the surgery, and were rated as being in less pain by an anesthesiologist (blind to condition). It is impossible to judge from this study, of course, the relative contributions of the multicomponent intervention.

Subsequent studies have attempted to assess the relative contributions to recovery of the two types of information. Johnson and Leventhal (1974), studying patients undergoing endoscopy, utilized four conditions: 1) procedural information only; 2) specific sensory information about what would be felt, tasted, seen, and heard during the procedure; 3) behavioral training on what to do during the throat puncture and tube insertion, plus procedural information; and 4) procedural and sensory information plus behavioral training. Results showed no differences between groups in tension-related arm movements. Among younger patients (under 50), all treatment groups showed slightly lower heart rates, and the younger patients receiving sensory information took fewer medications. Gagging was reduced for both the combined information and the sensory information only group. Tube passage actually took longer for the combined information groups than for controls of all
ages. In sum, the study showed a moderate amount of support for the value of sensory information, but clear superiority of any intervention was not established.

Mohros (1977) divided gastrointestinal endoscopy patients into similar groups: 1) specific, reassuring sensory information, 2) procedural information, 3) general sensory information only, 4) no information controls. No significant group differences were found on either avoidance movements during examination or tranquilizer dosage. Some support for the sensory information conditions was found in that both general and specific sensory information reduced distress scores slightly and produced a significant decrease in heart rate.

Finally, Johnson et al. (1973), also studying gastrointestinal endoscopy patients, performed a similar manipulation: some patients receiving only general hospital preparatory procedures, others hearing a detailed procedural message, and a third group hearing a detailed sensory message prior to the procedure. Measures of heart rate, gagging, and restlessness showed no differences between groups. However, both of the information groups showed fewer tension-related hand and arm movements than did the control groups. Once again, there was modest support for the value of preparatory information, but no clear superiority could be established for sensory or procedural information.
Interactions Between Preparatory Information and Coping Style

Several researchers have posed the question of whether or not standardized preparatory messages for medical procedures have uniform effects across individuals. Might not individual differences in personality have an impact on a person's responses to these messages? Are there different adaptational dispositions (e.g., coping styles) which might predispose individuals to benefit more or less from explicit messages about threatening situations? Indeed, could preparation actually have untoward effects in some individuals?

One line of such research grew out of laboratory studies on individual differences in response to stress conducted by Goldstein and his associates (see Goldstein (1973) for a summary of this work). Goldstein construed coping response patterns for dealing with threatening stimuli along a dimension of avoidance--vigilance. Various instruments (e.g., self-report, perceptual defense tasks, projective techniques) were investigated as means to efficiently and effectively classify individuals on this dimension. The one proving most fruitful was an application of projective testing in which a version of the Sentence Completion Test (SCT), as modified by Mainord (1956), was used. Criteria were developed by which judges could reliably scale subjects' sentence completions on a
vigilance--avoidance continuum. Vigilant subjects are those who attend to and elaborate fully on the threatening meaning conveyed by the incomplete sentence. They give personalized and specific responses, readily acknowledging feelings. Avoiders use arbitrary stereotyped responses, denying or evading the threatening content. To the stem, "I hate," vigilant responses might be: "my parents," "nosey people," or "anyone who is smarter than me." Avoidant responses might be: "to be caught in the rain without an umbrella" or "no one." Or to the stem, "If I am struck," the vigilant subject might write, "by someone, I would be furious," whereas the avoidant subject might say "It's not likely." Responses to a number of such items were summed, and the resulting scores were utilized to divide subjects into vigilant, avoidant, and neutral (mid-range score) groups.

Individuals so classified were shown to differ in their physiological responses (Goldstein et al., 1965) and in their instrumental responses (Adams & Goldstein, 1970; Goldstein & Adams, 1967) to laboratory-induced stress. Subsequently, two field investigations of naturally occurring stressors (namely, the stress of surgery) were carried out.

Andrew (1970) hypothesized that surgical patients whose preferred coping style was that of vigilance toward, rather than avoidance of, stressful stimuli should be expected to
welcome explicit information about surgical procedures they were to undergo, to learn such information, to reduce stress thereby, and to have less complicated recoveries. Coping style was assessed via the Sentence Completion Test method just described. Some of the patients, who were scheduled for hernia operations, heard an audio tape about hernias, surgical process, and recovery; control subjects did not hear the tape. Andrew found that avoiders required more medications, though not a longer recovery time, when instructed; the middle group recovered quicker and with fewer medications when instructed than when not instructed; and sensitizers recovered well whether or not they received instruction.

In a subsequent study, with different surgical groups (patients undergoing hysterectomies and gall bladder operations), DeLong (1971) again classified patients on the vigilant-avoider dimension, using the Goldstein Sentence Completion Test. Patients were assigned to hear one of two tapes—one containing specific information about surgery, and the other containing general information about the hospital. With regard to recovery, individuals given specific information had less complicated recoveries and were discharged earlier than those given general information. Coping style did interact with instruction to affect recovery indices, but the pattern of results was somewhat different than that found by Andrew (1970). DeLong found
that specific information had little effect on the middle ("neutral") group, who recovered well regardless of tape heard. Vigilant patients who heard specific information recovered better on both subjective and objective indices than did vigilant subjects who heard the general information tape. Avoiders, as a group, tended to have slow, complicated recoveries. Specific information had little effect on objective indices of recovery in the avoider group; however, avoiders who heard the specific information tape did voice more complaints than avoiders who heard the general information tape. Thus, these results suggest that vigilant patients did much better when they received relevant information about the stressor and much more poorly when they did not receive it. Conversely, the avoidant group, in this study, manifested some adverse effects when they received explicit information.

Other researchers have performed similar investigations, but have used different means to assess coping style variables. For instance, Shipley et al. (1978) recently investigated interactions between coping style and preparation for endoscopy. Coping style was measured by a modified form of the Repression-Sensitization Scale (Byrne, 1961; Epstein & Fenz, 1967) which is conceptually similar to the vigilant-avoidant dimension. "Sensitizers" are characterized by typically seeking information about
stresses as a means of anxiety management; whereas "repressors" avoid anxiety by shutting out awareness of anxiety producing cues and thoughts. Studying patients scheduled for their first endoscopy, Shipley et al. (1978) investigated anxiety as a function of number of prior viewings of an explicit videotape and of repression-sensitization coping style. On the dependent measures of heart rate, clinicians' behavioral ratings, tranquilizers required, and self-reported anxiety (State/Trait Anxiety Inventory), an increased number of viewings of the preparatory tape resulted in less distress. The physiological measure of heart rate interacted significantly with the repression-sensitization factor. "Sensitizers" showed decreased heart rate with more tape exposures (0, 1 or 3), whereas "repressors" manifested increased heart rate with one exposure and decreasing heart rates with subsequent exposures (i.e., an inverted U function). The later finding is interpreted as resulting from disruption of repressive defenses after one tape exposure, followed by extinction of fear through repeated exposures. In a second study, Shipley et al. (1979) repeated essentially the same experiment but this time used experienced endoscopy patients who had to re-experience that examination. On several dependent anxiety measures (physiological, behavioral, and self-report), more extensive preparation tended to decrease anxiety in sensitizers, and it had no effect or produced increased
anxiety in repressors. When the data were analyzed without regard to the repression-sensitization coping style, tape viewing appeared to produce little or no effect. These results led Shipley and his associates (1979) to conclude that sensitizers be "prepared extensively and repressors left alone or at least left with their defenses" (p. 506). In other words, for optimal effect, preparation for stressful procedures should take individual personality differences into account.

Auerbach et al. (1976) used general and specific information tapes to determine their impact on anxiety and behavioral adjustment during dental surgery. This group investigated how another personality dimension, locus of control (Rotter, 1966), interacted with specific versus general information. They found no main effects for either locus of control or specificity of information. However, when the personality variable was considered, they did find significant interactions. Internals had better adjustment ratings if they viewed the specific tape rather than the general tape. The opposite pattern was found for externals.

The overall pattern of results from these studies is complex and, in some instances, less clearcut than one might hope. Further complicating matters is a study by Cohen and Lazarus (1973) which attempted to compare different methods of assessing coping style. Cohen and Lazarus compared
"dispositional measures" (i.e., trait measures, including the Goldstein Sentence Completion Test and the modified Repression-Sensitization scale) with "process measures" (i.e., observer ratings of coping style based on information seeking by patients during interviews). To obtain "process" ratings, patients were interviewed to assess their coping behavior "on the spot," prior to surgery. They were also given several psychological tests. After surgery, several recovery indices were monitored. (It should be noted that no patient education intervention was carried out as part of this study.) With regard to recovery variables, results showed that the group rated by observers as most vigilant had the most complicated recoveries. Coping disposition measures, anxiety scores, and life change event scores showed no clear relationship with recovery indices. Additionally, process ratings of coping were not significantly correlated with SCT scores, and only moderately correlated (.27, p<.05) with the modified Repression-Sensitization scale.

Wilson (1981) compared the effectiveness of two interventions, relaxation training and preparatory sensory information, in a study of elective surgery patients (gall bladder operations and abdominal hysterectomies). Personality variables (denial, fear, aggressiveness) were also taken into account. However, each of these personality variables was assessed simply by patients' ratings of three
self-report items pertaining to each variable. Recovery indices showed positive effects for both intervention strategies (particularly for the relaxation training). In addition, personality factors were associated with recovery and influenced patients' responses to preparation. Non-aggressive patients (i.e., patients who reported that they would respond to hypothetical situations involving pain or discomfort with relatively little anger or aggressiveness) reacted to information with decreased hospital stay, but with increased pain, medication, and epinephrine levels. Aggressive patients responded to information with shortened hospital stays, less pain, less medication, and lower epinephrine levels. No significant interactions were found between the three-item self-report scale of denial and the interventions. With regard to patients' fear ratings, less frightened patients benefitted more from relaxation than did very frightened patients.

Though the personality constructs assessed, and the methods utilized to measure them, have varied from case to case, studies by Andrew (1970), DeLong (1971), Auerbach et al. (1976), and Wilson (1981) all suggest that coping style characteristics of the individual patient affect response to preparatory interventions in medical situations.
CHAPTER II
PURPOSE OF STUDY AND HYPOTHESES

Overview

This study focuses on the following domains: affective responses of patients undergoing medical treatment for serious illness, preparatory patient education for medical procedures, and individual differences in styles of coping with threatening medical situations. In particular, this study is concerned with selected psychosocial factors affecting patients undergoing their first course of radiation therapy.

The specific objectives of the investigation are 1) to assess patients' affective and cognitive responses to a radiation therapy patient education module, and 2) to assess to what degree individual differences in coping style affect responses to patient education materials. Thus the study first seeks to evaluate an intervention. It investigates what effects, if any, a preparatory audiovisual patient education module has on a) the patient's fund of treatment-related information, and b) the degree of dysphoric affect experienced during treatment. Second, the study explores whether individuals who differ in coping style will manifest different patterns of response (both in terms of what they
learn and how they feel emotionally) to the patient education intervention.

This study builds on and extends earlier research by 1) providing further objective documentation of oncology patients' psychological status; 2) investigating patients' responses to a major treatment modality (radiation therapy); 3) attempting to ameliorate emotional distress through a brief intervention which offers relevant, treatment-related information; and 4) exploring whether individual differences in coping style modulate patients' responses to psychosocial intervention.

Research Questions and Hypotheses

There are three main research questions posed by this study, entailing six specific hypotheses.

First Research Question: What effect will an audio-visual patient education program, presented at the beginning of radiation therapy treatment, have on the patients' level of treatment-related knowledge and on their affective status?

Hypothesis 1: Patients receiving the patient education intervention will manifest greater accuracy of information about radiation therapy treatment than patients not receiving the intervention.

Hypothesis 2: Patients receiving the patient education intervention will report lower levels of affective
distress than will patients not receiving the intervention.

Second Research Question: Will individual differences in coping style dispositions (repression-sensitization, avoidant-vigilant) be related to acquisition of treatment-related information and to affective status?

Hypothesis 3: Patients with a sensitization (vigilant) coping style will manifest greater accuracy of treatment-related information than will those with a repressive (avoidant) style.

Hypothesis 4: Patients with a sensitization (vigilant) coping style will tend to report greater affective distress than will those with a repressive (avoidant) coping style.

Third Research Question: Will individual differences in coping style dispositions (sensitization-repression, avoidance-vigilance) interact with intervention condition (high vs. low patient education) to affect outcome measures (treatment-related knowledge and affective status)?

Hypothesis 5: Highest levels of treatment-related knowledge will be found in sensitizers (vigilant copers) exposed to the patient education module (high information condition); lowest levels of treatment-related knowledge will be found in repressors (avoiders) in the low information condition.
Hypothesis 6: Lower levels of affective distress will be reported by sensitizers (vigilant copers) receiving patient education and repressors (avoiders) not receiving patient education; higher levels of affective distress will be reported by repressors (avoiders) receiving patient education and sensitizers (vigilant copers) not receiving patient education.
CHAPTER III

METHODS

Subjects

Selection Criteria

Participants in the study were recruited from patients beginning their first course of treatment at UCLA's Department of Radiation Oncology. The only exclusionary criteria were the following: patient under 18 years old, inability to read and write English, previous radiation therapy treatment, anticipated course of treatment less than four weeks, too ill to complete questionnaires. Participation was not restricted on the basis of disease site or stage, other treatment history, specific type of radiation therapy being administered (all patients were receiving external source radiation, either from a cobalt machine or a linear accelerator), nor on the basis of any demographic variables.

Recruitment Procedure

Typically, patients who are referred to the Radiation Oncology Department come first for a "consultation visit." During this appointment the patient is examined by the radiation oncologist, the case is reviewed, and treatment options are explained. If the decision is made to
administer treatment (some cases are not found to be appropriate for treatment; others may receive radiation therapy elsewhere), a treatment planning ("set-up") appointment is scheduled. At this session, usually scheduled for 90 minutes, radiation therapy equipment is positioned, and plans are made for any additional materials (lead blocks, molds, etc.) needed for treatment. The patient is then scheduled for actual treatment. Though treatment schedules vary, most patients are treated five times per week (Monday-Friday) for a period of four to five weeks. Treatment sessions are brief, being scheduled every ten minutes. A period of one day to one week may elapse between the set-up appointment and the initiation of treatment, depending on the patient's physical condition, time needed to prepare custom-made materials for treatment, and other factors.

For purposes of recruitment into the study, patients were personally contacted by a member of the research team at the time of their treatment planning visit or, if this

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1 A cadre of undergraduate and graduate students assisted across the course of the study in the tasks of recruiting patients for the study and administering the questionnaires. Since patients could be scheduled for any time between 3am and 5pm, Monday through Friday, it was advantageous to have several assistants who could cover various time periods.
was impossible, at the first treatment session.\textsuperscript{1} The purpose and nature of the study would be explained briefly, and, if the patient indicated willingness to participate, he or she would be scheduled to participate in the study later that day or at the next regularly scheduled visit. Thus the experimental intervention and initial assessment for this study occurred near the beginning of treatment, but not before the patient had already had some contact with the Department.

Since new patients could be scheduled at any time throughout the forty-hour week, it was not possible to attempt recruitment of every incoming patient. Instead the sample was recruited from incoming patients scheduled for times when one of the researchers could be present. However, it is not likely that this factor presented any biasing effects, since patients are randomly assigned to treatment times as openings occur in the treatment schedule, and in the course of the study all time periods throughout the week were sampled.

\textsuperscript{1} Patients were not contacted at the initial consultation visit for two reasons. First, as explained above, not all patients seen for a consultation would, in fact, receive treatment. Second, the physicians felt that the consultation visit was often a distressing time for patients. In their opinion, it would have been inappropriate and counterproductive to propose research participation at that particular time.
Sample Characteristics

Seventy-two patients were recruited to participate in the study. Among these patients, 12 could not be included in the final sample used for analysis due to one of the following reasons: 1) treatment discontinued early (four patients); 2) physical condition deteriorated such that the patient felt unable to complete final assessment (four patients); 3) deceased before final assessment (two patients); or 4) the patient failed to complete all questionnaires (two patients). This left a final sample of 60 patients who completed the entire study.

Within the boundaries of the selection criteria set forth above, the final study sample consisted of a representative, heterogeneous sample of patients undergoing their first course of radiation therapy treatment. Disease, treatment, and demographic characteristics of the study participants are summarized in Tables 1 and 2.

Independent Variables

Intervention Condition

Patients were assigned to either of two intervention conditions: 1) the "high information" condition which entailed exposure to an audiovisual patient education module, or 2) the "low information" condition which consisted of standard departmental procedures; i.e., no audiovisual patient education program.
TABLE 1

Disease and Treatment Characteristics of Study Participants

<table>
<thead>
<tr>
<th>Disease Site/Type</th>
<th>Low Information Condition (N=30)</th>
<th>High Information Condition (N=30)</th>
<th>Total Sample (N=60)</th>
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<td>9</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Breast</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Brain</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Cervix</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Prostate</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Ovary</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Melanoma</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Pituitary Adenoma</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Metastatic Disease (Unknown Primary)</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Lung</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Stomach</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Endometrium</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Colon</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Bladder</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Multiple Myeloma</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Neurofibroma</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
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</table>

Radiation Therapy Equipment

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Low (N=30)</th>
<th>High (N=30)</th>
<th>Total (N=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Accelerator</td>
<td>14 (46.7%)</td>
<td>17 (56.7%)</td>
<td>31 (51.7)(^a)</td>
</tr>
<tr>
<td>Cobalt Machine</td>
<td>16 (53.3%)</td>
<td>13 (43.3%)</td>
<td>29 (48.3%)</td>
</tr>
</tbody>
</table>

\(^a\)Numbers in parentheses represent percentages
TABLE 2

Demographic Characteristics of Total Sample (N=60)

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>30</td>
<td>(50.0)</td>
</tr>
<tr>
<td>Female</td>
<td>30</td>
<td>(50.0)</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>37</td>
<td>(61.7)</td>
</tr>
<tr>
<td>Widowed</td>
<td>7</td>
<td>(11.7)</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>(10.0)</td>
</tr>
<tr>
<td>Never Married</td>
<td>10</td>
<td>(16.6)</td>
</tr>
<tr>
<td><strong>Ethnic Group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>50</td>
<td>(83.3)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6</td>
<td>(10.0)</td>
</tr>
<tr>
<td>Asian</td>
<td>3</td>
<td>(5.0)</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>(1.7)</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
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<td></td>
</tr>
<tr>
<td>Working, Full-time</td>
<td>17</td>
<td>(28.3)</td>
</tr>
<tr>
<td>Working, Part-time</td>
<td>4</td>
<td>(6.7)</td>
</tr>
<tr>
<td>Unemployed, Looking for work</td>
<td>2</td>
<td>(3.3)</td>
</tr>
<tr>
<td>Too ill to work, disabled</td>
<td>16</td>
<td>(26.7)</td>
</tr>
<tr>
<td>Managing Household</td>
<td>9</td>
<td>(15.0)</td>
</tr>
<tr>
<td>Retired</td>
<td>10</td>
<td>(16.7)</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>(3.3)</td>
</tr>
<tr>
<td><strong>Annual Household Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $10,000</td>
<td>12</td>
<td>(20.0)</td>
</tr>
<tr>
<td>$10,000 - $19,999</td>
<td>15</td>
<td>(25.0)</td>
</tr>
<tr>
<td>$20,000 - $29,999</td>
<td>12</td>
<td>(20.0)</td>
</tr>
<tr>
<td>$30,000 and over</td>
<td>21</td>
<td>(35.0)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>50.8</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>21-75</td>
<td></td>
</tr>
<tr>
<td><strong>Education (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>14.1</td>
<td></td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>8-20</td>
<td></td>
</tr>
</tbody>
</table>
Patients assigned to the high information condition were shown a slide/tape program entitled "Introduction to the Radiation Oncology Department." Developed by the UCLA Office of Cancer Communications in conjunction with the Office of Instructional Development, the slide/tape program is approximately twelve minutes in length and is viewed on a self-contained, automatically-forwarded, rear-projection unit. The program is designed to orient the new patient to the therapeutic process he/she is about to undergo and to answer many commonly asked questions. More specifically, it a) introduces the patient to the personnel of the department and the variety of professional roles represented (radiation oncologists, technicians, nurses, physicists, dosimetrists, etc.); b) shows various types of radiation therapy equipment; c) outlines the sequence of procedures to which the patient will be subjected during treatment planning and treatment itself; d) explains and demonstrates what the patient will see, hear, and feel during treatment; e) presents basic information about how radiation therapy works; and f) attempts to dispel some common misconceptions about radiation therapy. The slide/tape program thus provides both "procedural" and "sensory" information, though the emphasis is on the former.

A copy of the shooting script and photographic list can be found in Appendix 1. The finished product reflects professional production standards, having cost approximately
$4,000.00 to produce,\textsuperscript{1} not including considerable staff time invested in its development. All statements in the script were carefully reviewed and cleared by the radiation oncology staff. The slide/tape program, though relatively brief, does provide much more explicit and comprehensive information than had been previously provided to patients, and it covers orientation material in an organized, systematic fashion. The program amounts to a formal statement by the department, encouraging patients to be informed about their treatment and the department's procedures, and it explicitly encourages patients to ask questions and seek further information.

The low information group consisted of patients who did not see the slide/tape program but instead simply received current departmental procedures. The procedures, prior to the introduction of the slide/tape program, did not include an organized patient education or orientation program, although staff members (doctors, nurses, technicians) have always been available to answer questions, if asked. A copy of the booklet, "Radiation Therapy and You," produced by the National Cancer Institute, was given to every patient in the study. (This pamphlet had been available to patients in the

\textsuperscript{1}Support for the production of the patient education module was provided by National Cancer Institute Communications Contract #CN-85397.)
waiting room, and we wished to insure that all study participants had equal opportunity to read it, if desired.)

**Assignment to Conditions**

Due to logistical factors (including, most significantly, the fact that each patient is seen five times per week in the clinic and all patients share common waiting rooms), it was deemed undesirable to assign successive new patients randomly to either see or not see the patient education module. The medical staff felt strongly that this would create problems—e.g., patients asking, "Why didn't I (or my family member) get to see the slide/tape program that patient "X" was talking about?" Furthermore, there could have been "contamination" problems with regard to the study itself if, as one might anticipate, patients in the intervention group began sharing their recollections (accurate and inaccurate) with other patients who had been assigned to the low information (no slide/tape program) group.

The plan adopted was to collect data first from a series of thirty new patients receiving standard care and procedures of the department. This group constituted the "low information" group for the study. The slide/tape program was then introduced and made available to all new patients entering the department, and the intervention or "high information" group was recruited and assessed. This
order (low information, then high information) was the most practical since once the patient education module was introduced, it would have been difficult and impractical to withdraw it; both patients and staff would have become accustomed to its availability.

Though this procedure for conducting the study technically makes this a "non-equivalent control group" design, there is no reason to believe that this method of assigning patients to arms of the study introduced any systematic bias into the patient groupings. New patients constantly enter treatment at the department as they are referred by their primary physicians throughout the region. Thus, although the two groups for this study were taken from two different time periods, one would not anticipate this fact to produce meaningful group differences in factors such as distribution of disease sites, stage of disease, specific form of radiation treatment, and demographic variables (age, sex, marital status, ethnic group membership, socioeconomic class, etc.). Indeed, this proved to be the case. A comparison of the two groups on disease, treatment, and demographic variables, presented in Table 3 reveals that the two groups are comparable on all of these dimensions.

Coping Style Measures

This study hypothesizes that the impact of high or low levels of introductory patient education will vary as a function of individual differences in coping style. Stated
<table>
<thead>
<tr>
<th>Demographic Characteristics by Intervention Group Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

| | **No. (%)** | **No. (%)** |
| Low Information | High Information |
|-------------------------------------------------------------|
| Sex | Male | 13 (43.3) | 17 (56.7) |
| | Female | 17 (56.7) | 13 (43.3) |
| Marital Status | Married | 16 (53.3) | 21 (70.0) |
| | Widowed | 5 (16.7) | 2 (6.7) |
| | Divorced | 2 (6.7) | 4 (13.3) |
| | Never Married | 7 (23.3) | 3 (10.0) |
| Ethnic Group | Caucasian | 26 (86.7) | 24 (80.0) |
| | Hispanic | 2 (6.7) | 4 (13.3) |
| | Asian | 1 (3.3) | 2 (6.7) |
| | Other | 1 (3.3) | 0 (0.0) |
| Employment Status | Working, full-time | 8 (26.7) | 9 (30.0) |
| | Working, part-time | 0 (0.0) | 4 (13.3) |
| | Unemployed, looking for work | 2 (6.7) | 0 (0.0) |
| | Too ill to work, disabled | 9 (30.0) | 7 (23.3) |
| | Managing household | 5 (16.7) | 4 (13.3) |
| | Retired | 4 (13.3) | 6 (20.0) |
| | Other | 2 (6.7) | 0 (0.0) |
| Annual Household Income | Less than $10,000 | 6 (20.0) | 6 (20.0) |
| | $10,000 - $19,999 | 9 (30.0) | 6 (20.0) |
| | $20,000 - $29,999 | 6 (20.0) | 6 (20.0) |
| | $30,000 and over | 9 (30.0) | 12 (40.0) |

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otherwise, the cognitive and affective outcomes of patient education are posited to be not solely the result of degree of information presented, but rather, to reflect an interaction of dispositional factors (coping style) and specificity of preparatory information.

Chapter I reviewed the handful of studies to date which have assessed coping style dispositional variables in the context of preparation for stressful medical procedures. The present study employed two measures which had been used in previous research.

**Avoidant-Vigilant Sentence Completion Test (SCT).** This is an application of projective technique in which the respondent completes a series of twenty sentence stems, each of which, as modified by Mainord (1956), contains a threatening implication (see Appendix 3 for a list of the sentence stems). As noted in the literature review, scoring of the instrument for the avoidant-vigilant construct was originally developed by Goldstein and associates at UCLA (Adams & Goldstein, 1970; Goldstein & Adams, 1967; Goldstein, 1973). More explicit and definite scoring criteria for the construct were developed by DeLong (1971). Concerning scoring criteria she says:

---

1 There are also five "filler" stems, containing neutral content (Nos. 1, 6, 16, 21). These function as "breaks" in what would otherwise be a very forbidding set of stems and thus facilitate completion of the form.
Responses to the sentence stems are scored on a three point scale depending on the degree of approach or avoidance [of potential threat] expressed. Responses indicating intense, immediate, personalized involvement are scored 2. Responses indicating denial, remoteness and lack of personalized involvement are scored 0. Intermediate responses are scored 1. Recognition of the [threatening] implication of the sentence stem, intensity of the emotion expressed and personalization of the answer, as well as immediacy rather than remoteness, are all considered in the scoring. (p. 63)

Individual item scores are summed, giving a final score which can range from 0 to 40.

More recently, Maddahi and Rapkin (1981) have developed an annotated version of the scoring manual which gives more detailed guidelines for scoring criteria (see Appendix 3). Raters trained with this manual achieve high levels of interjudge reliability, and the instrument shows good stability across time (test-retest reliability $r = .75$, over a four month period) (Maddahi et al., in press).

For purposes of this study, experienced raters trained with the Maddahi and Rapkin manual were utilized. Each SCT form was scored by two raters, and the mean score from the two ratings was utilized. Inter-rater reliability was very good ($r = .95$, $p < .001$).

Repression-Sensitization Scale (R-S Scale). The R-S scale, originally developed by Byrne (1961), is an empirically-derived scale consisting of items from the MMPI.
Describing the construct, Byrne (1964) writes:

At one end of this continuum of defensive behaviors are those responses which involve avoidance of the anxiety-arousing stimulus and its consequents. Included here are repression, denial, and many types of rationalization. At the sensitizing extreme of the continuum are behaviors which involve an attempt to reduce anxiety by approaching or controlling the stimulus and its consequents. The latter mechanism include intellectualization, obsessive behaviors, and ruminative worrying. (pp. 167-170)

Sensitizers can be described as handling stress in a vigilant fashion. They are overtly anxious, keen to threatening cues, and apt to use intellectualization as a defense. By way of contrast, repressors are not overtly anxious, and cope with the threat of stress by avoiding thoughts about it, repressing it, or denying its potential stressfulness. A considerable amount of research has been done with the R-S scale, relating it to perceptual defense, memory, clinical judgments of defensive behavior, awareness of anxiety, self-concept, neurotic behaviors and various other personality dimensions (see Byrne, 1964, for an extensive review of this research).

With developments in psychosomatic medicine, investigators began exploring relationships between repression-sensitization and health behavior. If the R-S dimension reflects characteristic ways of coping with stress, it is reasonable to expect that repressors and sensitizers would differ in health behaviors. Byrne et al. (1968) reported that sensitizers indicated a greater
frequency and/or severity of illness than repressors and that male sensitizers sought medical help more often than did male repressors or intermediates. Gayton et al. (1978) reported that sensitizers had significantly more visits (both medically justified and unjustified) to an infirmary than did repressors. Sensitizers and repressors did not differ, however, in the proportion of justified/unjustified visits.

A modified, short form of the R-S scale was developed by Epstein and Fenz (1967) in order to eliminate the high correlation between R-S and measures of anxiety. As already discussed in Chapter I, scores on the modified R-S scale have been found to interact with degree of preparatory information, affecting patient adjustment to endoscopy examination (Shipley, Butt, & Horowitz, 1979; Shipley, Butt, Horowitz, & Farbry, 1978). The short form, modified R-S scale was used in the present study (see Appendix 2 for scale items).

Dependent Variables

The major outcome variables of interest are 1) the patient's knowledge of radiation therapy, and 2) the patient's emotional status during the course of therapy. Thus, information is being collected both about cognitive and affective variables.
Level of Knowledge

Each patient's knowledge of radiation therapy was assessed by a 21-item, objective questionnaire entitled, "Radiation Therapy Questionnaire" (see Appendix 2), developed for this study. All items on the test have been drawn from the scripts of the patient education materials presented to the patients and cover the major points which are presented. The test contains items on treatment methods, sensations experienced during treatment, side effects, departmental procedures, and common misconceptions about radiation therapy. Total score on this instrument consists simply of the number of correct responses (range 0-21).

In addition to the objective test of patient knowledge, patients also answered a brief self-report questionnaire, giving a subjective appraisal of the degree to which the individual feels him/herself to be well informed about i) radiation therapy procedure, ii) the side effects of radiation therapy, and iii) the effects of radiation therapy on one's illness. With regard to each of these dimensions the patient rated himself/herself on a four-point scale. These three items were summed yielding one score (range 3-12) which is labelled Self-Assessment of Knowledge (SAK).

Affective Status Variables

Affective status was assessed via well-established, psychometrically sound tests. Anxiety level during the
course of treatment was assessed by the State/Trait Anxiety Inventory (STAI) (Spielberger et al., 1970). The STAI entails two, 20-item, self-report scales: one in which patients describe how they "generally" feel (trait), the other indicating how they feel "at this moment in time" (see Appendix 2). State anxiety scores were utilized for purposes of this study.

A second, generalized affective arousal indicator was obtained via the Profile of Moods States (POMS) (McNair et al., 1971). It consists of 65 five-point objective ratings describing mood states. Although the POMS can be scored for clinical purposes in terms of six factors, giving an affective "profile" ("Tension-Anxiety," "Depression-Dejection," "Anger-Hostility," "Vigor-Activity," "Fatigue-Inertia," and "Confusion-Bewilderment"), the sub-scales are highly inter-correlated. The test developers have suggested that, when researchers desire a global estimate of affective state, a "Total Mood Disturbance" score (TMD) be calculated by summing the individual factor scores (weighting vigor negatively). The TMD score was utilized for this study.

These instruments, STAI and POMS, were selected not only because of their well-established psychometric qualities, but also because they are easily and quickly administered and have been previously used in cancer patients studies.
Procedures for Administration of the Independent and Dependent Variables

Setting

The study was conducted at the Department of Radiation Oncology located in the UCLA Center for Health Sciences. The departmental conference room was utilized to show the patient education slide-tape program and for administration of questionnaires. This location afforded sufficient privacy while at the same time being within the treatment setting itself.

Each study participant completed the study procedures individually. Family members were allowed to accompany the patient during the study procedures, if they so desired. The experimenter would sit with the subject, introducing each questionnaire, checking for completeness and legibility, and answering questions which might arise in regard to the questionnaires.

Data Collection Schedule

Patients were assessed at two points: 1) at the outset of their radiation therapy treatments, and 2) during the last week of treatment. As explained above, the initial assessment and patient education intervention (for the high information group) were conducted as soon as possible after treatment began (days 1 to 3). Patients then received treatment five days per week for a period of four to five weeks. The follow-up evaluation was administered during the
final five days of treatment. This schedule allowed us to evaluate not only the immediate impact of the patient education intervention, but also the patient's emotional state and treatment-related knowledge as treatment drew to a close.

Data collection sessions were scheduled with the patients to coincide with their regularly scheduled treatment appointments. The initial intervention and data collection session required 45 to 60 minutes. The follow-up session at the end of treatment required only 15 to 20 minutes.

Instructions to the Subjects

At the beginning of the first data collection session, the experimenter would introduce himself and talk informally for two or three minutes with the subject. The study would be introduced by saying:

This study, which is being conducted with patients like yourself who are beginning radiation therapy, is concerned with what patients know about their medical treatment and how they feel psychologically. To gather this information, we will be asking you to fill out a series of questionnaires. In addition you will be given some information about radiation therapy. Approximately 45 minutes will be required to complete this session. As you end your radiation therapy treatments, we will be asking you to complete a few more questionnaires. Do you have any questions?

Each questionnaire would then be presented individually in the appropriate order. (See the following section for order of presentation.) With regard to each questionnaire,
brief instructions would be given about how to complete it appropriately. Any printed instructions on the questionnaires (e.g., on the State/Trait Anxiety Inventory and the Profile of Mood States) would be read aloud by the experimenter. Subjects would be prompted once to complete any items which had been skipped.

If the subject was scheduled to see the slide-tape program, it would be introduced at the appropriate juncture, in the following manner: "Now we would like you to see a brief slide-tape program about the radiation therapy department. It will last about 12 minutes. Following it, we will finish a few more questionnaires." The slide-tape program would then be shown in the same room. Patients not scheduled to see the program (low information condition) would be allowed to take a brief break (staying in the room) before completing the remaining questionnaires.

If questions were asked about radiation therapy or other medical matters during the course of the study procedures, the experimenter would not answer them directly. Instead, he/she would acknowledge the question and suggest to the patient that the regular staff members in the Radiation Oncology Department were better qualified to answer such questions and would be pleased to do so. The patient would be encouraged to present his/her questions(s) to the doctor or to one of the department's nurses or radiation technologists.
Sequence of Procedures

The sequence in which the questionnaires and patient education module were administered is given below. (Copies of all instruments can be found in Appendix 2.)

1. Patient Information Questionnaire—demographic information
2. Modified Sentence Completion Test—coping style questionnaire
3. Modified Repression-Sensitization Scale—coping style questionnaire
4. Intervention
   a. High information condition—exposure to the slide-tape program, "Introduction to the Radiation Oncology Department"
   b. Low information condition—no exposure to the slide-tape program
5. State/Trait Anxiety Inventory—affect questionnaire
6. Profile of Mood States—affect questionnaire
7. Self-Assessment of Knowledge—self report on knowledge about treatment
8. Radiation Therapy Questionnaire—objective test of treatment-related knowledge

The final assessment, which did not include the demographic or coping style questionnaires, required 15-25 minutes. The order was as follows:

1. State Form of the State/Trait Anxiety Inventory
2. Profile of Mood States
3. Self-Assessment of Knowledge
4. Radiation Therapy Questionnaire
5. Self-Report on Amount of Patient Education Booklet Read
Summary of Study Design

The overall design of the study can be conceptualized as a two-by-two factorial design, with two intervention conditions (high vs. low information) and post-hoc classification on coping style. As noted earlier, two separate methods for measuring coping style are being utilized, so separate analyses will be carried out for each (avoider vs. vigilant coper and repressor vs. sensitizer). There are four dependent variables: 1) objective assessment of treatment-related knowledge (RTQ); 2) subjective assessment of knowledge (SAK); 3) Total Mood Disturbance from the Profile of Mood States (TMD); and 4) State Anxiety (A-State). Each dependent variable is assessed at two points in time: Time 1—immediately after the "experimental manipulation" (patient education module or not), during the first week of treatment; and Time 2—four to six weeks later, at the conclusion of radiation therapy treatment. It is important to note that this is not a pretest-posttest design; instead it is a design in which subjects are assigned to condition, receiving one of two treatments, and are evaluated at two points following intervention. The results will be analyzed by appropriate statistical methods to test, both a Time 1 and Time 2, for possible effects due to intervention condition, coping style classification, and interactions between these two factors.
CHAPTER IV

RESULTS

Descriptive Statistics for Variables

Independent Variables

Table 4 presents descriptive statistics for the two coping style variables utilized in this study. Possible scores on the SCT range from 0 to 40; the actual range obtained was from 4.5 to 30.5. The possible range of scores on the R-S scale is from 0 to 30; the actual range obtained in this sample was from 6 to 18. Both distributions were within acceptable limits of skewness (\(-0.48\) for SCT and \(-0.05\) for R-S). The sampled scores thus appear to have sufficient variability and normality of distribution for utilization in the planned statistical procedures.

For purposes of subsequent analyses of variance, median splits (at 20.5 for SCT, and 12.5 for R-S) were utilized to classify subjects as "repressors" vs. "sensitizers" and "avoiders" vs. "vigilant copiers" on the R-S scale and SCT scale, respectively. Table 5 presents the resulting cell frequencies. It will be noted that the cell frequencies are relatively balanced in the case of R-S, but in the case of
# TABLE 4

Descriptive Statistics for Coping Style Variables

<table>
<thead>
<tr>
<th>Coping Style Variable</th>
<th>Low Information (N=30)</th>
<th>High Information (N=30)</th>
<th>Total Sample (N=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.C.T. a Mean</td>
<td>19.83</td>
<td>21.97</td>
<td>20.90</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>4.83</td>
<td>3.90</td>
<td>4.44</td>
</tr>
<tr>
<td>R.S. b Mean</td>
<td>12.70</td>
<td>12.13</td>
<td>12.42</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>3.06</td>
<td>2.56</td>
<td>2.81</td>
</tr>
</tbody>
</table>

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a Avoider-Vigilant Coper Sentence Completion Test. Higher scores are in the direction of vigilance.

b Modified Repression-Sensitization Scale. Higher scores are in the direction of sensitization.
TABLE 5

Cell Frequencies for Intervention Group by Coping Style Variables

<table>
<thead>
<tr>
<th>Intervention Condition</th>
<th>R-S Classification</th>
<th>SCT Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repressor</td>
<td>Sensitizer</td>
</tr>
<tr>
<td><strong>Low Information</strong></td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td><strong>High Information</strong></td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td><strong>N=30</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SCT there are, by chance, more avoiders than vigilant copers in the low information condition and more vigilant copers than avoiders in the high information condition. However, these cell frequencies are not significantly different (chi-squared = 3.3 p> .05). Each cell N is sufficiently large to permit further statistical analyses, utilizing analysis of variance procedures for unbalanced cells.

The two coping style measures, R-S and SCT, proved to be completely uncorrelated (r = -.04, n.s.) in this sample. They are being treated as two independent, empirically unrelated means of classifying coping style. For purposes of hypothesis testing, separate analyses are planned for each coping style dimension.

**Dependent Variables**

Table 6 presents descriptive statistics for the dependent variables for both the initial and follow-up evaluations. These variables and their respective labels are State Anxiety (A-State), Total Mood Disturbance from the Profile of Mood States (TMD), objective test of radiation therapy knowledge (RTQ), self-assessment of radiation therapy knowledge (SAK), and self-report on the amount of the booklet, "Radiation Therapy and You," which had been read by the final assessment (Book).

Skewness scores, which indicate the deviation of the distributions from normality, are within acceptable limits (i.e., skewness < 1.00) for all of the dependent variables
TABLE 6

Descriptive Statistics for Dependent Measures for Total Sample
(N=60)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Skewness</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Min.</td>
<td>Max.</td>
</tr>
<tr>
<td>A-State1(^a)</td>
<td>40.58</td>
<td>11.91</td>
<td>0.36</td>
<td>21</td>
</tr>
<tr>
<td>A-State2(^a)</td>
<td>40.75</td>
<td>11.61</td>
<td>0.20</td>
<td>21</td>
</tr>
<tr>
<td>TMD1</td>
<td>31.80</td>
<td>37.33</td>
<td>0.84</td>
<td>-27</td>
</tr>
<tr>
<td>TMD2</td>
<td>30.35</td>
<td>33.54</td>
<td>0.81</td>
<td>-19</td>
</tr>
<tr>
<td>RTQ1</td>
<td>16.25</td>
<td>3.08</td>
<td>-0.83</td>
<td>8</td>
</tr>
<tr>
<td>RTQ2</td>
<td>16.92</td>
<td>2.65</td>
<td>-0.73</td>
<td>9</td>
</tr>
<tr>
<td>SAK1</td>
<td>9.20</td>
<td>1.96</td>
<td>-0.87</td>
<td>3</td>
</tr>
<tr>
<td>SAK2</td>
<td>9.98</td>
<td>1.74</td>
<td>-0.99</td>
<td>3</td>
</tr>
<tr>
<td>Book2</td>
<td>78.97</td>
<td>31.27</td>
<td>-1.44</td>
<td>0</td>
</tr>
</tbody>
</table>

\(^a\)Numerals 1 and 2 following the variable abbreviation designate first and second evaluation times, respectively.
except the self-report on the amount of the booklet read. This variable tended to be highly skewed toward the upper limit; the average percent read was 79%, with 65% of the patients reporting that they had read 100% of the booklet. Fortunately, this variable did not play a key role in the hypotheses being evaluated. (It was included in order to have some check on the degree of self-administered patient education obtained through reading, since the booklet was routinely made available to all patients in the department.) Due to the highly skewed distribution of this variable, it will not be included in subsequent statistical analyses. It is fair to surmise, however, that patients in both intervention conditions, and across both coping styles, reported a high rate of reading the patient education booklet.

The other dependent variables appear to have acceptable distributions in terms of means, standard deviations, ranges, and skewness. The A-State means for this sample are similar to the norms for "general medical and surgical patients without psychiatric complications" (A-State = 42.68, SD = 13.76) reported in the STAI manual (Spielberger et al., 1970). Norms for the Total Mood Disturbance score from the POMS are not available. It should be noted that the sample in this study had rather large standard deviations on the TMD score at both the initial and the follow-up (RTQ), a knowledge test devised for this study, indicate
that, though the scores tended to cluster somewhat toward the higher end, the instrument was sufficiently challenging to produce a considerable range in scores and sufficient variability. The SAK scores (self-ratings on how well-informed patients considered themselves to be) show that the patients tended to rate themselves as very well-informed about their treatment. With a possible high rating of 12, the means at initial and final evaluation were 9.70 and 9.98. These self-ratings also tended to be skewed toward the high end and to have relatively little variability.

Inter-variable Correlations

The correlation matrix for the dependent variables is presented in Table 7. Several of these correlations are worthy of note:

1) The two measures of affective disturbance are positively and highly correlated, as expected ($r$ [A-State1, TMD1] = .71, $p<.001$; $r$ [A-State2, TMD2] = .74, $p<.001$).

2) The patients' subjective assessments of knowledge are only modestly correlated with the objective measures of knowledge at the initial evaluation ($r$ [SAK1, RTQ1] = .26, $p<.05$) and not at all correlated at the follow-up assessment ($r$ [SAK2, RTQ2] = .02, n.s.). As noted earlier, the patients tended to rate themselves as quite well-informed. This self-evaluation appears to be independent of their actual degree of knowledge about treatment.
### TABLE 7

Correlation Matrix of Dependent Variables for Total Sample (N=60)

<table>
<thead>
<tr>
<th></th>
<th>A-State1</th>
<th>A-State2</th>
<th>TMD1</th>
<th>TMD2</th>
<th>RTQ1</th>
<th>RTQ2</th>
<th>SAK1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-State2</td>
<td>.74***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMD1</td>
<td>.71***</td>
<td>.54***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMD2</td>
<td>.58***</td>
<td>.74***</td>
<td>.68***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTQ1</td>
<td>-.11</td>
<td>-.12</td>
<td>-.12</td>
<td>-.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTQ2</td>
<td>-.20</td>
<td>-.15</td>
<td>-.16</td>
<td>-.15</td>
<td>.69***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAK1</td>
<td>-.27*</td>
<td>-.20</td>
<td>-.33*</td>
<td>-.39**</td>
<td>.26*</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>SAK2</td>
<td>-.32*</td>
<td>-.34**</td>
<td>-.20</td>
<td>-.32*</td>
<td>.21</td>
<td>.02</td>
<td>.52***</td>
</tr>
</tbody>
</table>

* *p<.05
** p<.01
*** p<.001
3) The measures of affective disturbance tend to be negatively correlated with knowledge assessments. These correlations, modest in all cases, are more accentuated and achieve statistical significance only with regard to the subjective assessments of knowledge (\( r[SAK1, A-State1] = -.27, p<.05; r[SAK1, TMD1] = -.33, p<.05; r[SAK2, A-State 2] = -.34, p<.05; r[SAK2, TMD2] = -.32, p<.05 \)). The correlations between the objective measure (RTQ) and affect indicators are in the same direction, but they do not achieve statistical significance. It appears that there is a negative correlation between how good the patient feels emotionally and how much the patient thinks he/she knows.

**Tests of Hypotheses**

**Statistical Approach**

It will be recalled that the hypotheses to be tested (see Chapter II) postulate main effects for intervention condition and coping style, and an interaction effect between these two factors. For statistical analysis, this calls for a two-way analysis of variance which will test for possible effects due to each of the two factors (intervention condition and coping style) and due to interaction effects. Separate ANOVAs were carried out with regard to each of the four dependent variables, both at Time 1 and at Time 2.
An alternative statistical approach—namely, Multivariate Analysis of Variance (MANOVA) was considered, but ultimately rejected, for use in this case. The MANOVA offers the advantage of simultaneously comparing all dependent variable means, thus minimizing the risk of falsely accepting a positive finding when multiple comparisons between variables are being made. Since there are multiple outcome measures in this study, each measured two times, it would seem desirable, if possible, to employ a multivariate method. However, the MANOVA is more appropriately applied in studies with much larger samples (hence larger cell frequencies) than afforded by this study. The MANOVA is a rather conservative test from a statistical perspective and provides little "power" to detect differences, especially when the total N is small. Furthermore, this study has only four dependent variables, so the number of separate mean comparisons is not exceedingly high. Therefore, a univariate analysis of variance approach has been chosen.

Results at Initial Testing (Time 1)

Tables 8-13 present the dependent variable means and resulting analyses of variance for the initial evaluation. The ANOVAs (Tables 10 and 13) show that, at the initial assessment, there was a statistically significant main effect for intervention group on the objective measure of
TABLE 8

Means for Affect Variables by Group and SCT Classification at Time 1

A-State

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (SCT)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avoider</td>
<td>Vigilant Coper</td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>43.06</td>
<td>41.92</td>
<td>42.60</td>
</tr>
<tr>
<td>(N=18)</td>
<td>(N=12)</td>
<td>(N=30)</td>
<td></td>
</tr>
<tr>
<td>High Information</td>
<td>36.09</td>
<td>40.00</td>
<td>38.57</td>
</tr>
<tr>
<td>(N=11)</td>
<td>(N=19)</td>
<td>(N=30)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40.41</td>
<td>40.74</td>
<td>40.58</td>
</tr>
<tr>
<td>(N=29)</td>
<td>(N=31)</td>
<td>(N=60)</td>
<td></td>
</tr>
</tbody>
</table>

Total Mood Disturbance (TMD)

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (SCT)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avoider</td>
<td>Vigilant Coper</td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>34.28</td>
<td>38.42</td>
<td>35.93</td>
</tr>
<tr>
<td>High Information</td>
<td>22.36</td>
<td>30.73</td>
<td>27.67</td>
</tr>
<tr>
<td></td>
<td>29.76</td>
<td>33.71</td>
<td>31.80</td>
</tr>
</tbody>
</table>
### TABLE 9

Means for Knowledge Variables by Group and SCT Classification at Time 1

Radiation Therapy Questionnaire (RTQ)

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style</th>
<th>Avoider</th>
<th>Vigilant Coper</th>
<th>总体</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td>Avoider</td>
<td>15.44</td>
<td>14.42</td>
<td>15.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vigilant Coper</td>
<td>16.41</td>
<td>16.10</td>
<td>16.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Information</td>
<td>Avoider</td>
<td>18.00</td>
<td>17.16</td>
<td>17.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vigilant Coper</td>
<td>8.72</td>
<td>9.65</td>
<td>9.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Self-Assessment of Knowledge (SAK)

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style</th>
<th>Avoider</th>
<th>Vigilant Coper</th>
<th>总体</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td>Avoider</td>
<td>8.50</td>
<td>9.58</td>
<td>8.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vigilant Coper</td>
<td>9.09</td>
<td>9.68</td>
<td>9.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Information</td>
<td>Avoider</td>
<td>8.72</td>
<td>9.65</td>
<td>9.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vigilant Coper</td>
<td>8.72</td>
<td>9.65</td>
<td>9.20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 10

Analysis of Variance for Intervention by SCT Coping at Time 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-State</td>
<td>Total</td>
<td>59</td>
<td>8370.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>279.3</td>
<td>1.95</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>SCT Coping</td>
<td>1</td>
<td>27.2</td>
<td>0.19</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x SCT</td>
<td>1</td>
<td>90.2</td>
<td>0.63</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td>8010.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMD</td>
<td>Total</td>
<td>59</td>
<td>82237.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>1359.4</td>
<td>0.94</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>SCT Coping</td>
<td>1</td>
<td>554.3</td>
<td>0.39</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x SCT</td>
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<td>63.5</td>
<td>0.04</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td>80600.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTQ</td>
<td>Total</td>
<td>59</td>
<td>559.3</td>
<td>12.15</td>
<td>p&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
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<td>99.3</td>
<td>12.15</td>
<td>p&lt;.001</td>
</tr>
<tr>
<td></td>
<td>SCT Coping</td>
<td>1</td>
<td>12.4</td>
<td>1.15</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x Coping</td>
<td>1</td>
<td>0.1</td>
<td>0.01</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td>457.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAK</td>
<td>Total</td>
<td>59</td>
<td>227.6</td>
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</tr>
<tr>
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<td>0.45</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>SCT Coping</td>
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<td>9.9</td>
<td>2.62</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x SCT</td>
<td>1</td>
<td>0.9</td>
<td>0.22</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td>212.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 11

Means for Affect Variables by Group and R-S Classification at Time 1

A-State

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (R-S)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repressor</td>
</tr>
<tr>
<td>Low Information</td>
<td>39.64</td>
</tr>
<tr>
<td>High Information</td>
<td>38.06</td>
</tr>
<tr>
<td></td>
<td>38.80</td>
</tr>
</tbody>
</table>

Total Mood Disturbance (TMD)

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (R-S)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repressor</td>
</tr>
<tr>
<td>Low Information</td>
<td>22.50</td>
</tr>
<tr>
<td>High Information</td>
<td>25.94</td>
</tr>
<tr>
<td></td>
<td>24.33</td>
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</tbody>
</table>
TABLE 12

Means for Knowledge Variables by Group and R-S Classification at Time 1

Radiation Therapy Questionnaire (RTQ)

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (R-S)</th>
<th>Repressor</th>
<th>Sensitizer</th>
<th>Mean Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td></td>
<td>14.57</td>
<td>15.44</td>
<td>15.03</td>
</tr>
<tr>
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<tr>
<td></td>
<td></td>
<td>15.87</td>
<td>16.63</td>
<td>16.25</td>
</tr>
</tbody>
</table>

Self-Assessment of Knowledge (SAK)

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (R-S)</th>
<th>Repressor</th>
<th>Sensitizer</th>
<th>Mean Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td></td>
<td>8.86</td>
<td>9.00</td>
<td>8.93</td>
</tr>
<tr>
<td>High Information</td>
<td></td>
<td>9.94</td>
<td>8.93</td>
<td>9.47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.43</td>
<td>8.97</td>
<td>9.20</td>
</tr>
</tbody>
</table>
TABLE 13

Analysis of Variance for Intervention by R-S Coping Style at Time 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-State</td>
<td>Total</td>
<td>59</td>
<td>8370.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>217.1</td>
<td>1.54</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>R-S Coping</td>
<td>1</td>
<td>163.9</td>
<td>1.16</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x R-S</td>
<td>1</td>
<td>74.4</td>
<td>0.53</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td>7888.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMD</td>
<td>Total</td>
<td>59</td>
<td>82237.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>796.6</td>
<td>0.58</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>R-S Coping</td>
<td>1</td>
<td>3116.6</td>
<td>2.29</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x R-S</td>
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<td>1722.9</td>
<td>1.26</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
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<td>76373.1</td>
<td></td>
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</tr>
<tr>
<td>RTQ</td>
<td>Total</td>
<td>59</td>
<td>559.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>93.0</td>
<td>11.39</td>
<td>p&lt;.002</td>
</tr>
<tr>
<td></td>
<td>R-S Coping</td>
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<td>13.0</td>
<td>1.59</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x R-S</td>
<td>1</td>
<td>0.1</td>
<td>0.01</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAK</td>
<td>Total</td>
<td>59</td>
<td>227.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>3.8</td>
<td>0.99</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>R-S Coping</td>
<td>1</td>
<td>2.8</td>
<td>0.73</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Intervention x R-S</td>
<td>1</td>
<td>4.95</td>
<td>1.29</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
knowledge (RTQ). The group receiving the patient education slide-tape program showed greater accuracy of treatment-related knowledge than the group not receiving the intervention. There was no statistically significant main effect for either coping style measure, nor was there any interaction effect (treatment by coping style).

In several regards the pattern of the group means is in the predicted direction, though not reaching statistical significance. Considering first the affective variables (Tables 8 and 11), it can be seen that the high information group had lower State Anxiety and Total Mood Disturbance Scores than the low information group. There were also somewhat lower affect scores (A-State and TMD) for repressors as opposed to sensitizers, and avoiders as opposed to vigilant copers. Thus, both main effects were in the direction expected, but not sufficiently large to reach significance.

Although there is no clear overall interaction pattern (intervention by coping style), it is interesting to note that the highest affective disturbance scores were obtained by sensitizers (RS scale) and vigilant copers (SCT scale) in the low information condition. This pattern is consistent across both coping style measures and both affect measures (except for A-State by SCT, where the vigilant subjects in low information had the second highest score). For instance, the sensitizers in the low information condition
had TMD scores more than twice as high as the repressors in that intervention group (47.7 vs. 22.5). Their anxiety scores were also much higher than repressors in the low information condition (45.2 vs. 39.6). Giving information to sensitizers and vigilant copers appears to reduce their affective distress. For instance, sensitizers in the high information condition averaged only 29.6 on the TMD indicator, as compared to 47.7 for sensitizers in the low information condition. Similarly, their A-State scores differ considerably (45.2 for low information sensitizers; 39.1 for high information sensitizers). The pattern is similar, though less marked, for vigilant copers. On the other hand, there is no trend in the expected direction for interactions between repressors (avoiders) and information condition. Avoiders and repressors in the high information condition do not have increased anxiety and mood disturbance; if anything, their mood disturbance appears to decrease with information.

With regard to the knowledge variables (Tables 9 and 12), it can be seen that none of the results with the subjective assessment of knowledge (SAK) even approach significance. As noted before, these self-appraisals were uncorrelated with actual knowledge and tended to cluster at the top end of the scale. (Most patients felt themselves to be very well-informed from the outset of treatment.)
Because of the lack of variability, this measure produced no meaningful results at any point. The statistically significant main effect for intervention group on objective knowledge has already been noted.

With regard to the expected main effect for coping style on knowledge acquisition, it can be seen that sensitizers appeared to learn slightly more than repressors, but the avoider-vigilant coping dimension showed no such pattern. The predicted interaction effect (intervention by R-S coping style) on patient knowledge (RTQ) did follow the predicted pattern—i.e., the highest knowledge scores were obtained by sensitizers in the high information condition and the lowest scores were obtained by repressors in the low information condition. This pattern was obtained for the R-S coping variable, but not SCT.

Results at the Follow-up Evaluation (Time 2)

A somewhat different picture emerges when the results for the follow-up evaluation are considered (see Tables 14-19). The analyses of variance (Tables 16 and 19) show that at this juncture, four to six weeks later, there is a statistically significant main effect for intervention groups with regard to the two affective measures. When grouped by SCT, the patients who received the patient education module reported less state anxiety (37.9 vs. 43.6, p<.05) and lower Total Mood Disturbance (19.5 vs. 41.2, p<.005). When grouped by R-S, the F-value for state anxiety just misses
TABLE 14

Means for Affect Variables by Group and SCT Classification at Time 2

<table>
<thead>
<tr>
<th></th>
<th>Coping Style (SCT)</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Avoider</td>
<td>Vigilant</td>
<td>Coper</td>
</tr>
<tr>
<td>A-State</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>43.28</td>
<td>44.17</td>
<td>43.63</td>
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<tr>
<td>High Information</td>
<td>34.27</td>
<td>39.95</td>
<td>37.87</td>
</tr>
<tr>
<td></td>
<td>39.86</td>
<td>41.58</td>
<td>40.75</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Coping Style (SCT)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avoider</td>
<td>Vigilant</td>
<td>Coper</td>
</tr>
<tr>
<td>Total Mood Disturbance (TMD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>39.17</td>
<td>44.25</td>
<td>41.20</td>
</tr>
<tr>
<td>High Information</td>
<td>5.09</td>
<td>27.84</td>
<td>19.50</td>
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<tr>
<td></td>
<td>26.24</td>
<td>34.19</td>
<td>30.35</td>
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</table>
TABLE 15

Means for Knowledge Variables by Group and SCT Classification at Time 2

<table>
<thead>
<tr>
<th></th>
<th>Coping Style (SCT)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Avoider</td>
<td>Vigilant Coper</td>
<td></td>
</tr>
<tr>
<td><strong>Radiation Therapy Questionnaire (RTQ)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>16.94</td>
<td>15.92</td>
<td>16.53</td>
</tr>
<tr>
<td>High Information</td>
<td>17.82</td>
<td>17.00</td>
<td>17.30</td>
</tr>
<tr>
<td></td>
<td>17.28</td>
<td>16.58</td>
<td>16.92</td>
</tr>
<tr>
<td><strong>Self-Assessment of Knowledge (SAK)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Low Information</td>
<td>9.44</td>
<td>10.17</td>
<td>9.73</td>
</tr>
<tr>
<td>High Information</td>
<td>10.55</td>
<td>10.05</td>
<td>10.23</td>
</tr>
<tr>
<td></td>
<td>9.86</td>
<td>10.10</td>
<td>9.98</td>
</tr>
</tbody>
</table>
**TABLE 16**

Analysis of Variance for Intervention by SCT Coping at Time 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-State</td>
<td>Total</td>
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<td>7949.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
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<td>619.2</td>
<td>4.80</td>
<td>p&lt;.033</td>
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<tr>
<td></td>
<td>SCT Coping</td>
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<td>152.5</td>
<td>1.18</td>
<td>n.s.</td>
</tr>
<tr>
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<td>0.63</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>56</td>
<td>7220.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TMD</td>
<td>Total</td>
<td>59</td>
<td>66401.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>9023.8</td>
<td>9.10</td>
<td>p&lt;.004</td>
</tr>
<tr>
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<td>SCT Coping</td>
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<td>2743.2</td>
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<td>n.s.</td>
</tr>
<tr>
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<td>Intervention x SCT</td>
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<td>1.11</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
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<td>55546.2</td>
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</tr>
<tr>
<td>RTQ</td>
<td>Total</td>
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<td>414.6</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
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<td>1.93</td>
<td>n.s.</td>
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<tr>
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<td>SCT Coping</td>
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<td>1.72</td>
<td>n.s.</td>
</tr>
<tr>
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<td>Intervention x SCT</td>
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<td>0.2</td>
<td>0.02</td>
<td>n.s.</td>
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<tr>
<td></td>
<td>Error</td>
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</tr>
<tr>
<td>SAK</td>
<td>Total</td>
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<td>179.0</td>
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</tr>
<tr>
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<td>Intervention</td>
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<tr>
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<td>Intervention x SCT</td>
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<td>5.2</td>
<td>1.72</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
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<td>169.8</td>
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</tr>
</tbody>
</table>
TABLE 17

Means for Affect Variables by Group and R-S Classification at Time 2

A-State

<table>
<thead>
<tr>
<th>Group</th>
<th>Repressor</th>
<th>Sensitizer</th>
<th>Group Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td>40.36</td>
<td>46.50</td>
<td>43.63</td>
</tr>
<tr>
<td>High Information</td>
<td>38.25</td>
<td>37.43</td>
<td>37.87</td>
</tr>
</tbody>
</table>

Total Mood Disturbance (TMD)

<table>
<thead>
<tr>
<th>Group</th>
<th>Repressor</th>
<th>Sensitizer</th>
<th>Group Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td>29.07</td>
<td>51.81</td>
<td>41.2</td>
</tr>
<tr>
<td>High Information</td>
<td>20.00</td>
<td>18.93</td>
<td>19.5</td>
</tr>
</tbody>
</table>

| Group Total         | 24.23     | 36.47      | 30.35       |
TABLE 18

Means for Knowledge Variables by Group and R-S Classification at Time 2

**Radiation Therapy Questionnaire (RTQ)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (R-S)</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repressor</td>
<td>Sensitizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>16.29</td>
<td>16.75</td>
<td>16.53</td>
<td></td>
</tr>
<tr>
<td>High Information</td>
<td>17.19</td>
<td>17.43</td>
<td>17.30</td>
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</tr>
<tr>
<td></td>
<td>16.77</td>
<td>17.07</td>
<td>16.92</td>
<td></td>
</tr>
</tbody>
</table>

**Self-Assessment of Knowledge (SAK)**

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style (R-S)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repressor</td>
<td>Sensitizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>10.29</td>
<td>9.25</td>
<td>9.73</td>
<td></td>
</tr>
<tr>
<td>High Information</td>
<td>10.38</td>
<td>10.07</td>
<td>10.23</td>
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</tr>
<tr>
<td></td>
<td>10.33</td>
<td>9.63</td>
<td>9.98</td>
<td></td>
</tr>
</tbody>
</table>


### TABLE 19

Analysis of Variance for Intervention by R-S Coping Style at Time 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>( F )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-State</td>
<td>Total</td>
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<td>7949.3</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>466.5</td>
<td>3.65</td>
<td>(.061)</td>
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<tr>
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<td>R-S Coping</td>
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</tr>
<tr>
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<td>1.42</td>
<td>n.s.</td>
</tr>
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<td></td>
<td>Error</td>
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<td>7163.6</td>
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<td></td>
</tr>
<tr>
<td>TMD</td>
<td>Total</td>
<td>59</td>
<td>66401.6</td>
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</tr>
<tr>
<td></td>
<td>Intervention</td>
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<td>6571.6</td>
<td>6.63</td>
<td>.013</td>
</tr>
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<td>R-S Coping</td>
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<td>1753.1</td>
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</tr>
<tr>
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<td>2116.9</td>
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<td>n.s.</td>
</tr>
<tr>
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<td>Error</td>
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<td>55468.3</td>
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</tr>
<tr>
<td>RTQ</td>
<td>Total</td>
<td>59</td>
<td>414.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>1</td>
<td>9.3</td>
<td>1.29</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
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<td>1.8</td>
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<td>n.s.</td>
</tr>
<tr>
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<td>Intervention x R-S</td>
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<td>0.03</td>
<td>n.s.</td>
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<tr>
<td></td>
<td>Error</td>
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<td>SAK</td>
<td>Total</td>
<td>59</td>
<td>179.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
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<td>3.1</td>
<td>1.04</td>
<td>n.s.</td>
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<td>6.7</td>
<td>2.25</td>
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<td>Intervention x R-S</td>
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<td>2.0</td>
<td>0.67</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Error</td>
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<td>166.5</td>
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</tr>
</tbody>
</table>
significance ($F=3.65, p<.06$) perhaps due to different cell frequencies; the difference for TMD remains highly significant ($F=6.63, p<.013$).

The main effect for intervention condition on knowledge scores (RTQ), noted at Time 1, disappears at Time 2. Examination of the means indicates that, while the high information patients maintained a high level of knowledge, the low information group had, by this point, closed the gap in knowledge. Both groups averaged approximately 80% correct responses on the RTQ by the time they had finished treatment.

Neither the main effect for coping style nor the interaction effect (intervention by coping style measures) was statistically significant. However, the pattern of cell means at Time 2 is noteworthy; several of the findings observed at Time 1 are replicated at Time 2.

For instance, repressors and avoiders, as groups, report somewhat less affective distress than sensitizers and vigilant copers. Sensitizers maintain a slight superiority over repressors in terms of treatment-related knowledge (RTQ), but this is not the case for the SCT coping dimension. In general, the main effect for coping style (particularly on the R-S dimension) is in the expected direction, though not significant.

The interaction patterns noted earlier also obtain at Time 2. Sensitizers receiving patient education continue to
have the highest knowledge scores of all groups; repressors in the low information condition have the lowest scores. With regard to affect measures, the highest emotional distress scores across both affect variables and across both coping style measures were obtained by sensitizers and vigilant copers not receiving patient education. For instance, sensitizers in the low information condition had a TMD score of 51.8, whereas repressors in the same intervention condition averaged only 29.1. Other sensitizers who did receive patient education averaged only 18.9. Though these absolute score differences appear large, they do not reach statistical significance due to large variability in these measures and small cell frequencies.

In brief, the findings at Time 2 show that patients who received the patient education intervention manifested significantly less affective distress, regardless of coping style. The high information patients retained treatment-related knowledge, but other patients, not receiving the educational intervention, now matched them in knowledge. The coping style main effect and the interaction effect were not significant, but the pattern of group means continued, for the most part, to be in expected directions.

Analysis of Covariance

Since significant differences between intervention groups on the affect measures were found at the follow-up
assessment, it would be of interest to know whether those differences still hold when the means at Time 2 are adjusted for differences that existed at Time 1. To accomplish this, an analysis of covariance (ANCOVA) was performed, with the affect means at Time 1 serving as the covariates. (The parallelism of the regression lines of Time 2 on Time 1 was checked and found satisfactory for the ANCOVA.)

Tables 20 and 21 present the means at Time 2 when adjusted for differences found at Time 1. When this adjustment is taken into consideration, the main effect for intervention group remains highly significant for TMD (F=7.53, p<.01, when grouped by R-S; F=10.23, p<.003, when grouped by SCT). The A-State differences for the two intervention groups, however, are not statistically significant when so adjusted (F=2.06, n.s.; F=2.75, n.s., when classified by R-S and SCT, respectively). It should be remembered that this analysis is not the typical covariance analysis in which the adjustment is made for pre-existing differences--i.e., controlling for some biasing effect. Instead, the analysis in this case has removed the mean differences which had been created by the intervention at the first assessment point. We could therefore say that even when one adjusts statistically for the immediate positive affective change resulting from the intervention, the intervention group still shows significantly less Total Mood Disturbance at the follow-up
TABLE 20

Means for Affect Variables by Group and R-S at Time 2 Adjusted for Time 1

<table>
<thead>
<tr>
<th></th>
<th>Coping Style</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repressor</td>
<td>Sensitizer</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>41.01</td>
<td>43.31</td>
<td>42.16</td>
</tr>
<tr>
<td>High Information</td>
<td>40.00</td>
<td>38.43</td>
<td>39.21</td>
</tr>
<tr>
<td></td>
<td>40.50</td>
<td>40.87</td>
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</tr>
</tbody>
</table>

<table>
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<th></th>
<th>Coping Style</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Sensitizer</td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Information</td>
<td>34.39</td>
<td>42.72</td>
<td>38.56</td>
</tr>
<tr>
<td>High Information</td>
<td>23.35</td>
<td>20.16</td>
<td>21.76</td>
</tr>
<tr>
<td></td>
<td>28.87</td>
<td>31.44</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 21

Means for Affect Variables by Group and SCT at Time 2 Adjusted for Time 1

A-State

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style</th>
<th>Avoider</th>
<th>Vigilant</th>
<th>Coper</th>
<th>Adjusted for Time 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td>Avoider</td>
<td>41.56</td>
<td>43.24</td>
<td></td>
<td>42.40</td>
</tr>
<tr>
<td></td>
<td>Vigilant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Information</td>
<td>Avoider</td>
<td>37.39</td>
<td>40.35</td>
<td></td>
<td>38.87</td>
</tr>
<tr>
<td></td>
<td>Vigilant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>39.48</td>
<td>41.80</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Mood Disturbance (TMD)

<table>
<thead>
<tr>
<th>Group</th>
<th>Coping Style</th>
<th>Avoider</th>
<th>Vigilant</th>
<th>Coper</th>
<th>Adjusted for Time 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Information</td>
<td>Avoider</td>
<td>37.74</td>
<td>40.43</td>
<td></td>
<td>39.09</td>
</tr>
<tr>
<td></td>
<td>Vigilant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Information</td>
<td>Avoider</td>
<td>10.53</td>
<td>28.46</td>
<td></td>
<td>19.49</td>
</tr>
<tr>
<td></td>
<td>Vigilant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coper</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>24.13</td>
<td>34.44</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
assessment, four to six weeks later, than does the group without the intervention.

**Summary of Results in Relation to Hypotheses**

Hypotheses 1 and 2 were supported by the investigation. Patients receiving the patient education intervention did manifest greater accuracy of treatment-related information than did patients not receiving the intervention. This difference was significant, however, only at the first assessment point; by the end of treatment the low information condition patients showed equivalent levels of treatment-related knowledge. Patients receiving the intervention reported less affective distress than did patients not receiving the intervention. This difference reached statistical significance only at the follow-up assessment point, not at the first assessment immediately after the intervention.

The predicted main effects for coping style variables (hypotheses 3 and 4) were not supported by the data. Several findings were in the predicted direction but did not reach statistical significance. For instance, in terms of knowledge acquisition, sensitizers did tend, in both the high and low information conditions, to learn more than repressors. The same was not true, however, for vigilant copers as compared to avoiders (SCT scale). Coping style appeared to make some difference on affect variables, with
the repressors and avoiders reporting, as expected, less affective distress than the sensitizers and vigilant copers. Again, these differences were more marked for the R-S scale than for the SCT scale, but in both instances were not statistically significant. The pattern did appear, however, at both assessment points 1 and 2.

Hypotheses 5 and 6 concerned expected interaction effects (coping style by intervention condition). Several of the results were in the predicted direction, but again did not achieve statistical significance. With regard to knowledge (hypothesis 5), sensitizers in the high information condition had the highest knowledge scores, and repressors in the low information question had the lowest scores, as predicted. The same pattern did not obtain, however, for the SCT coping dimension. In terms of Hypothesis 6, the observed patterns were partially in the predicted direction, partially not. Sensitizers and vigilant copers did report considerably less affective distress at both assessment points and on both affect measures if they were in the high information condition as opposed to the low information condition. However, individuals at the other end of these coping dimensions (repressors and avoiders) did not report increased affective distress, as predicted, if they were exposed to the patient education information. Patient education appeared to reduce affective distress regardless of coping style.
CHAPTER V
DISCUSSION

Value of Patient Education

The results of this study indicate that patient education in a radiation therapy setting can effectively increase patients' treatment-related knowledge and ameliorate the degree of anxiety and general emotional distress experienced during treatment. Though the educational intervention consisted of a simple, brief, audiovisual presentation at the beginning of treatment, it yielded measureable improvements in the patients' understanding of their treatment and in mood state. Patients who were not exposed to the audiovisual presentation at the outset of treatment eventually gathered as much information about treatment (as indicated by knowledge assessments at the close of treatment), but the patients who were armed with more information from the outset reported significantly less affective distress when assessed at the termination of radiotherapy.

Patient education strikes many health professionals as inherently valuable, but empirical documentation of its efficacy and value to patients is often missing. This study adds additional empirical support to claims for the value of procedural and sensory information provided prior to a
stressful medical procedure. There are, of course, arguments drawn from ethical and legal grounds for informing patients about the medical procedures they are to experience; others would argue that having well-informed patients affords practical benefit in terms of patient management (e.g., increasing treatment compliance.) Studies such as this one suggest yet another basis—namely, that providing accurate information and creating appropriate anticipations in the patient may help reduce psychological distress. Patients who know what to expect as they enter treatment and who are free of active misconceptions appear to be less emotionally distraught than those without such information.

The Role of Coping Style

This study also investigated whether individual differences in coping style dispositions would play a role in modulating the benefits of preparatory patient education. The results indicated that coping style did not play as potent a role as had been anticipated. Several of the group means were in the predicted direction, though not reaching statistical significance. For instance, the data suggest that whether or not one receives explicit preparatory information prior to radiation therapy has a more marked emotional impact for persons with a vigilant, sensitizing style than for those with a repressive, avoidant style. It also appears that those with vigilant or sensitizing styles
of coping with threatening situations will learn more from educational materials, if given the opportunity. On the other hand, there were no observed untoward effects for avoiders and repressors, as had been suggested by some other studies (e.g., Shipley et al., 1978). Thus, it might be concluded that this study presents equivocal results regarding the role of coping style. The findings neither strongly support nor detract from the contention that individual differences in coping dispositions contribute to determining psychological response to treatment and to preparation-for-stress messages.

Since the predicted results with regard to coping were not strongly supported by the data, some of the possible reasons should be considered. Why did these results differ from other, similar studies reviewed earlier (see Chapter I) which did find significant effects for coping style as a mediator of response to preparatory patient education? One factor which must certainly be considered is the relatively small sample size for this study. Certainly, it could be argued that if a strong effect for coping were present, it would be seen even with small cell sizes. On the other hand, if there had been a larger N, some of the absolute mean differences which were observed may have reached statistical significance.
A second potential contributing factor was that this study contrasted coping style groups formed on the basis of a median split. Because of the distributions of the coping variables, the median split yielded groups that were not, in fact, very divergent from each other in mean score. This study may have, in fact, been comparing low-middles to high-middles on the SCT and R-S instead of true sensitizers to repressors and vigilants to avoiders. Again, had there been more subjects (thus affording sufficient numbers for more cells), a three-way split (high, medium, low) could have been performed. It is conceivable that extreme coping style differences (i.e., very avoidant or very vigilant) make a difference in how one responds to stress and to preparation-for-stress messages, whereas less extreme variations make little difference.

It should also not be forgotten that there are differences in the stressful situations represented by the various coping style studies. Other studies in this area had dealt with medical procedures which were relatively brief compared to radiotherapy (e.g., endoscopy examination, hospitalization for elective surgery). These procedures are characterized by an intense, but short-lived stressor which the patient can anticipate dissipating in a brief period of time. By way of contrast, radiation therapy persists for four to six weeks. Furthermore the results of radiotherapy are often ambiguous or may take several weeks to become
It should be remembered, as well, that the patients in the other coping style studies were much less ill than the patients in this study. The illnesses with which they were contending were, in most instances, far less stressful than the life-threatening illnesses which most of the patients in this sample were facing. (Two patients in this study died before they could complete the second assessment; another died a few days after completing the study.) Defensive processes which may play an important role in mobilizing a patient to deal with the discomfort of a brief examination, or even for a few days in the hospital for elective surgery, may be overshadowed and play a far less prominent role when the individual is faced with the onslaught of catastrophic illness and more diffuse, prolonged stressors.

A final factor to consider in this regard is the nature of the dependent variables, particularly the measurement strategies which were used to assess affective distress. This study had to rely on paper-and-pencil, self-report measures. Though both the State-Trait Anxiety Inventory and the Profile of Mood States are psychometrically sound instruments, they are, nonetheless, self-report measures vulnerable to defensive distortion on the part of the respondent. Shipley et al. (1978), for instance, found that certain physiological indicators of anxiety (e.g., heart rate) were correlated with repression-sensitization in the
endoscopy situation, but this was not the case for self-report measures of anxiety. The pre-surgical patient education studies also employed a number of readily counted behavioral indicators (e.g., number of days in hospital, pain medications requested, number of complaints voiced to staff). Unfortunately, the outpatient radiation therapy setting did not lend itself to these types of observations and necessitated use of the self-report measures. It certainly could be the case, for instance, that patients with an avoidant coping style responded to the mood questionnaires in a denying mode, minimizing reports of worry, sadness, fatigue, anger, and other negative affect. In other words, less direct means of detecting affective distress may have produced stronger associations between coping style and emotional variables.

Methodological Challenges of Field Research

Given the intents of this study, it would be quite easy to imagine a far "cleaner," more methodologically rigorous design than this study actually achieved. Indeed, numerous methodological compromises had to be made, rendering this study's design far from ideal. The problem with "ideal" studies, however, is that, at least when they are attempted outside the laboratory, they seldom get done. They usually require budgets, personnel, and time which were not available for this investigation. To be fair, though, the
more prominent methodological weaknesses of this study should be noted and discussed.

Since small sample size has already been cited more than once as a limiting factor, one may very well wonder why more patients were not recruited into the study. Several factors contributed to this problem. The patient education intervention was tailored specifically to the personnel and procedures of the UCLA Radiation Oncology Department, so the study was limited to that one setting. When patients at UCLA were actually approached to participate, it became clear that many were too ill to reasonably be expected to spend an hour reading and filling out questionnaires. It also became apparent that many people residing in Southern California, seeking treatment at a state-supported institution, cannot read and write English. These factors, plus the requirement that patients not have had previous radiotherapy, severely limited the potential pool of patients. Those potential participants would present themselves at the treatment setting for 15 to 20 minutes at any point throughout the forty-hour week, whenever they happened to be scheduled. Without a full-time person present at the treatment setting to recruit the potential patient on the first day of treatment (whenever that might be), many potential participants were lost. Of those contacted, the rejection rate for the study was low (approximately 20%). But with all these factors operative,
it took a full year to accumulate even the modest sample that was utilized for the study.

One serious limitation of this study is that, by necessity, it included patients with a wide variety of disease sites and stages. There were no controls for other medical treatment received, length of time since diagnosis, prognostic outlook, or other disease and treatment factors. One patient may have been receiving curative treatment for a recently discovered, localized tumor of the cervix, while another was receiving palliative treatment for end-stage metastatic disease. It appeared that the intervention conditions were relatively well balanced on such factors, but nevertheless, inclusion of so many types and stages of disease does make the study somewhat messy. It would have been much more desirable to restrict the study to one or two sites, to have been much more restrictive about medical history, stage of disease, and other medical factors, or at least to have had a sufficient number of patients that such factors could have been controlled for statistically. Were that possible, much of the background "noise" could have been eliminated, yielding a clearer picture of the phenomena being studied.

Clinical and logistical concerns of the medical staff resulted in two major compromises in the study design. The first was already discussed in the methods section--namely,
the requirement that patients not be randomly assigned to intervention conditions, but instead run sequentially (first "current procedures," then patient education intervention). Because of this study design feature, one must consider the possibility that the observed differences in knowledge and affect were the result of a "Hawthorne effect". That is, the introduction of the patient education module may have created other changes in the system -- for example, in the staff members' approach to dealing with patients. The between group differences could not therefore be attributed solely to the patient education intervention.

The second, important compromise was the requirement that patients not be assessed nor shown the patient education module until they had actually begun treatment. Because of certain factors in the procedures and administrative guidelines of the clinic, the staff rejected having the research team contact patients before they had seen the doctor for consultation. What became the final state of affairs was that it was simply not practical to actually conduct the first assessment nor administer the patient education until after the patients had made from one to three visits to the clinic (consultation, treatment planning, and perhaps one treatment session). This gave ample opportunity to have already learned quite a bit about treatment procedures and for initial anxiety to have dissipated somewhat. (With this in mind, it is even more
remarkable that the patient education intervention could make a difference in terms of knowledge about basic treatment-related facts.) Dismaying as these contraints were from a research standpoint, a behavioral researcher in a medical setting must remember that she/he is a guest in the house of medicine. A case could be presented for methodological purity, but the medical director and his colleagues had final decision making authority. As it was, the study was a considerable imposition on the staff, as well as the patients, and one has to be thankful for the opportunity to conduct such research at all, even it it entails some compromises.

The Reality of Information Needs

"Why waste money and time with patient education projects like this?" asked one physician, when he heard of this study. "Patients know what to expect.... Why, it's always explained clearly to them. Besides, this isn't the sort of thing that can be studied scientifically, anyway." It would be nice to think that such opinions are infrequent, but this investigator's guess would be that they are representative of many practitioners in the medical world. That is, quite obviously, mere speculation. What is not speculative is what this study showed about patients' informational needs. Is this enterprise, after all, "much to do about nothing"? Is there really a lack of accurate
information among patients facing procedures such as radiotherapy?

This study provides additional data suggesting that radiation therapy patients do, in fact, have unmet informational needs. In this regard the present investigation is consistent with earlier studies such as those by Peck and Boland (1977), Cassileth et al. (1980), and Holland et al. (1979). Consider, for instance, some of the results from individual items of the Radiation Therapy Questionnaire (the twenty-one item, objective test of basic knowledge about treatment procedures). One must keep in mind that, when this was first administered, the patients had already consulted with the radiation oncologist, had at least one (sometimes two) lengthy treatment planning sessions, and had come back to actually begin treatment. Of the sampled patients not exposed to the patient education intervention, a few (15%) mistakenly thought that treatment would be painful, and 12% were confused about how long they would be exposed to radiation during each treatment session. (No patient should be misinformed about such matters.) A remarkable 48% of the patients missed a true-false item about how radiation therapy works, incorrectly endorsing the statement that radiation therapy "...uses heat to burn away cells." Procedures of the department were not well understood either. Thirty-three percent (33%) did not understand why patients had to wait up to a week between
treatment planning and the beginning of treatment itself. Knowing they had cancer, or suffering from some symptom of the disease, the rationale for this waiting period was not an indifferent matter. Over half (55%) could not correctly identify the purpose of the simulation (treatment planning) from among four possible answers in a multiple choice format. (Remember, these patients had themselves already undergone that procedure.) To take one last example, 70% of this sample could not correctly identify the meaning of "rad" from among four possibilities (25% would get it right by chance alone). "Rad" is a commonly used word in this setting, as in, "You'll be receiving 3000 rads, Mrs. Jones, during your period of treatment."

There was considerable evidence that patients were eager to learn more about their treatment. This is shown, for instance, by the fact that, of the total sample of 60 patients, a majority read the patient education booklet even without explicit encouragement to do so. To the item, "I would like to learn more about radiation therapy," 87% replied affirmatively.

These data, plus the results of the major hypotheses being investigated in this study, suggest that a meaningful way for allied health care professionals to help patients cope with the stresses of medical treatment is to see that patients are adequately informed. One need not search for
esoteric or complex psychological intervention techniques to help patients when basic information needs have not yet been met. Quite obviously there is a need for more research on how best to convey such messages, how they should be tailored for different ethnic groups, educational levels, and for a variety of clinical settings. Also, as this study attempted, we must learn more about how psychological differences may mediate the effects of such patient education messages. But when approximately half of the patients are confused about the basic mechanism of action of the treatment they are undergoing and another 55% do not understand the purpose of a hour-long treatment planning procedure they just experienced, there is an obvious agenda for health professionals. In meeting these informational needs we might not only fulfill a basic responsibility we have in relation to those for whom we care, but also provide some important cognitive tools with which patients can more effectively cope with treatment-related stresses.
APPENDIX 1

SLIDE-TAPE PROGRAM SCRIPT
INTRODUCTION TO THE
RADIATION ONCOLOGY DEPARTMENT

SLIDE-TAPE PRESENTATION

DRAFT #15 7/31/81
Shooting Script by:
Roderick M. Kramer
Office of Cancer Communications
UCLA Jonsson Comprehensive Cancer Center

This project was supported by
National Cancer Institute
Contract No. CN-85397
## Introduction to the Radiation Oncology Department

<table>
<thead>
<tr>
<th>SLIDE #</th>
<th>VISUAL DESCRIPTION</th>
<th>AUDIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) SLIDE: ONCOLOGY RECEPTION AREA</td>
<td>Welcome to the radiation oncology department.</td>
<td></td>
</tr>
<tr>
<td>(2) MULTI-IMAGE</td>
<td>We've prepared this program to acquaint you with your department. This way you'll know what to expect during your treatments. Of course, you may still have questions after this introduction.</td>
<td></td>
</tr>
<tr>
<td>(3) SLIDE: NURSE HANDING PACKET TO PATIENT</td>
<td>So, at the end of this a staff member will be available to answer some of these questions.</td>
<td></td>
</tr>
<tr>
<td>(4) COPY-STAND &quot;RADIATION THERAPY AND YOU&quot;</td>
<td>You'll also receive a brochure which discusses your radiation therapy.</td>
<td></td>
</tr>
<tr>
<td>(5) BURN-IN GRAPHIC/SLIDE: OVER BG Patient under Lin. Acc. Soft focus</td>
<td>Radiation therapy typically involves several stages. We'll discuss each of these in order, including: Your first visit to our department and what to expect during - the planning and preparation period - the treatment itself, - and the follow-up to treatment.</td>
<td></td>
</tr>
<tr>
<td>(6) BURN-IN GRAPHIC/SLIDE: THE FIRST VISIT RECEPTIONIST HANDING PATIENT FORMS ETC.</td>
<td>The purpose of the first visit is obtain all of the information necessary to prepare your treatment. You may not receive any treatment at all during your first few visits.</td>
<td></td>
</tr>
<tr>
<td>(7) SLIDE: PATIENT WITH DOCTOR</td>
<td>The reason for this is that your treatment must be individually planned to meet your specific medical needs.</td>
<td></td>
</tr>
<tr>
<td>(8) MULTI-IMAGE: DOCTOR, NURSE, TECHNOLOGIST, PHYSICIST</td>
<td>While receiving radiation therapy, you'll be treated by a team of health professionals supervised by a radiation oncologist.</td>
<td></td>
</tr>
</tbody>
</table>
A radiation oncologist is a doctor specializing in radiation therapy for treating cancer and other diseases.

Even when not meeting with you directly, your radiation oncologist will plan and supervise each step of your treatment.

During your first visit, your radiation oncologist will review your medical records, discuss your medical history, and examine you.

Normally, the oncologist will see you at least once a week throughout your treatment.

At some point before any treatment actually begins, your therapy will be explained in detail to you. You'll be asked to sign a consent form indicating your understanding of the treatment and its side effects. This is a standard procedure for all patients. If you have any questions about your treatment or the consent form, you should ask the radiation oncologist.

Planning your treatment is a very important part of your care. Even though you might want to begin treatment as soon as possible, the time spent planning and preparing for treatment is critical.

A number of activities will take place during the planning period.

An identification photograph will be taken to help the medical staff keep your records straight.
### INTRODUCTION TO THE RADIATION ONCOLOGY DEPARTMENT

<table>
<thead>
<tr>
<th>SLIDE #</th>
<th>VISUAL DESCRIPTION</th>
<th>AUDIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>(19) <strong>SLIDE:</strong> TAKING PHOTOGRAPH OF PATIENT'S NECK</td>
<td>Another photograph will be taken of the area to be treated.</td>
<td></td>
</tr>
<tr>
<td>(20) <strong>SLIDE:</strong> L.S. SIMULATION ROOM</td>
<td>Much of the planning may take place in the Simulation Room. Sometimes treatment planning may be done directly in the treatment room.</td>
<td></td>
</tr>
<tr>
<td>(21) <strong>ILLUS.: PATIENT ON TABLE UNDER X-RAY WITH BEAM HITTING NECK</strong></td>
<td>The purpose of simulation is to determine the proper positioning of the equipment which will later be used as part of your actual treatment. This way, the radiation used during treatment can be focused directly on the treatment area.</td>
<td></td>
</tr>
<tr>
<td>(22) <strong>SLIDE:</strong> L.S. SIMULATOR ROOM WITH PATIENT</td>
<td>The simulator is actually a special kind of x-ray machine which takes x-ray pictures of the area to be treated.</td>
<td></td>
</tr>
<tr>
<td>(23) <strong>SLIDE:</strong> RADIATION TECHNICIAN IN SIMULATION ROOM</td>
<td>The simulator, as well as the equipment which will later be used as part of your treatment, is operated by a radiation therapy technologist.</td>
<td></td>
</tr>
<tr>
<td>(24) <strong>SLIDE:</strong> RADIATION TECHNICIAN REVIEWING X-RAY WITH DOCTOR</td>
<td>The technologist works closely with your doctor to assure that you receive precisely the treatment recommended for you.</td>
<td></td>
</tr>
<tr>
<td>(25) <strong>SLIDE:</strong> TECHNICIAN PLACING LEAD TAPE ON PATIENT'S ABDOMEN</td>
<td>During the simulation, the technologist may place lead tape around the treatment area.</td>
<td></td>
</tr>
<tr>
<td>(26) <strong>COPY-STAND X-RAY LEAD TAPE</strong></td>
<td>The lead tape shows up on the x-ray, providing a check on the positioning of the equipment and the treatment area.</td>
<td></td>
</tr>
<tr>
<td>SLIDE #</td>
<td>VISUAL DESCRIPTION</td>
<td>AUDIO</td>
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<tr>
<td>(27) SLIDE: BODY MOLD</td>
<td>A mold, made of plaster or plastic strips, may be made. This takes about 10 to 15 minutes and helps you remain in the same position during treatment.</td>
<td></td>
</tr>
<tr>
<td>(28) SLIDE: TECHNICIAN BEHIND GLASS WITH PATIENT ON TABLE</td>
<td>During simulation, the technologist will leave the room frequently to take x-rays and to show the film to your doctor.</td>
<td></td>
</tr>
<tr>
<td>(29) SLIDE: LEAD BLOCKS</td>
<td>These x-rays may be used later to make lead blocks. These blocks are custom made for each patient's body and protect healthy tissue from the radiation.</td>
<td></td>
</tr>
<tr>
<td>(30) SLIDE: LEAD BLOCKS IN PLACE</td>
<td>At times there may be more than one person in the room to observe you or discuss your case.</td>
<td></td>
</tr>
<tr>
<td>(31) SLIDE: DOCTOR AND TECHNICIANS CONSULTING</td>
<td>Because this is a research center, doctors or medical students may observe some of these procedures.</td>
<td></td>
</tr>
<tr>
<td>(32) SLIDE: DOCTOR AND MEDICAL STUDENTS</td>
<td>Once the precise treatment area has been determined, the skin will be marked with a dye. Be careful not to wash the marks off. Since this dye may rub off onto your clothes, it's a good idea not to wear your best shirt or undergarment. You may want to wear an old T-shirt or undergarment. Since the treatment may last several weeks, we'll let you know when you can wash the dye off. The simulator phase is a critical part of your treatment planning. It may take several hours, and some procedures may even have to be repeated.</td>
<td></td>
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<tr>
<td>SLIDE #</td>
<td>VISUAL DESCRIPTION</td>
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</tr>
<tr>
<td>(35)</td>
<td>SLIDE: MONTAGE—TECHNICIANS WORKING</td>
<td>There are a number of other highly trained specialists who, even though you may have little direct contact with them, are working for you behind the scenes throughout planning and treatment. Each of these professionals contributes his or her special expertise to assure that you'll be offered the most comprehensive and effective medical care possible.</td>
</tr>
<tr>
<td>(36)</td>
<td>SLIDE: TECHNICIAN ADJ. MACHINE</td>
<td>For example, a radiation physicist works with your doctor to determine the correct amount of radiation used in your treatment, the proper positioning of the equipment, and the schedule of treatment sessions.</td>
</tr>
<tr>
<td>(37)</td>
<td>SLIDE: TECHNICIAN AT CONTROL PANEL</td>
<td>A dosimetrist will help calculate the exact dosage of radiation used in each of the individual treatment sessions.</td>
</tr>
<tr>
<td>(38)</td>
<td>SLIDE: RADIATION PHYSICIST, PRINT-OUT</td>
<td>You'll also get to know the nurses who work in our department. These nurses have special training and experience caring for patients undergoing radiation therapy. They can often help answer many of your questions.</td>
</tr>
<tr>
<td>(39)</td>
<td>SLIDE: DOSIMETRIST WORKING, CRT</td>
<td>If you, or a family member, experience any personal difficulties, a clinical social worker is available to help.</td>
</tr>
<tr>
<td>(40)</td>
<td>SLIDE: NURSE TALKING WITH PATIENT</td>
<td></td>
</tr>
<tr>
<td>(41)</td>
<td>SLIDE: NURSE EXAMINING PATIENT</td>
<td></td>
</tr>
<tr>
<td>(42)</td>
<td>SLIDE: SOCIAL WORKER WITH PATIENT &amp; SPOUSE</td>
<td></td>
</tr>
<tr>
<td>(43)</td>
<td>COPY STAND: CALENDAR MARKED OFF</td>
<td>After the simulation there may be a period of several days, sometimes up to a week, before your actual treatment begins.</td>
</tr>
<tr>
<td>SLIDE #</td>
<td>VISUAL DESCRIPTION</td>
<td>AUDIO</td>
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<td>--------</td>
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</tr>
<tr>
<td>44</td>
<td><strong>SLIDE</strong>: MOLDS BEING MADE</td>
<td>During this week, the special molds and other materials needed for treatment will be prepared.</td>
</tr>
<tr>
<td>45</td>
<td><strong>COPY STAND</strong>: APPOINTMENT SCHEDULE</td>
<td>As soon as everything is ready, an appointment time will be scheduled for you. We'll try to make this time as convenient as possible for you.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This schedule depends on the particular treatment program your oncologist has planned.</td>
</tr>
<tr>
<td>46</td>
<td><strong>SLIDE</strong>: PATIENT PHONING IN FROM PHONE BOOTH WITH DISABLED CAR IN BACKGROUND</td>
<td>It's very important not to miss an appointment. If, for any reason, you must miss an appointment, please let us know as early as possible. The number to call is located on the brochure we'll give you.</td>
</tr>
<tr>
<td>47</td>
<td><strong>SLIDE</strong>: PATIENT GETTING OUT OF CAR</td>
<td>On your appointment day, you should allow plenty of time to drive to UCLA, park, and change your clothes. A private dressing room is also available.</td>
</tr>
<tr>
<td>48</td>
<td><strong>SLIDE</strong>: PATIENTS WAITING IN READING ROOM</td>
<td>We try to see you as soon as possible, but sometimes you may have to wait. A waiting room is provided for your comfort. If you'd like, a family member or friend can stay with you, or you may want to bring something to read.</td>
</tr>
<tr>
<td>49</td>
<td><strong>SLIDE</strong>: PATIENT IN WAITING ROOM</td>
<td>You'll be called as soon as the treatment room is ready.</td>
</tr>
<tr>
<td>50</td>
<td><strong>SLIDE</strong>: C.U. CONTROL PANEL</td>
<td>There are several modern radiation therapy machines available. One or more may be used as part of your treatment.</td>
</tr>
</tbody>
</table>
## INTRODUCTION TO THE RADIATION ONCOLOGY DEPARTMENT

<table>
<thead>
<tr>
<th>SLIDE #</th>
<th>VISUAL DESCRIPTION</th>
<th>AUDIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>SLIDE: MAXITRON</td>
<td>You may, for example, be treated with a maxitron,</td>
</tr>
<tr>
<td>52</td>
<td>SLIDE: COBALT MACHINE</td>
<td>a cobalt machine, or</td>
</tr>
<tr>
<td>53</td>
<td>SLIDE: LINEAR ACCELERATOR</td>
<td>a linear accelerator.</td>
</tr>
<tr>
<td>54</td>
<td>SLIDE: CU--THERMOMETER</td>
<td>The treatment rooms are deliberately kept cool, about 72°, to assure that the equipment operates properly.</td>
</tr>
<tr>
<td>55</td>
<td>SLIDE: SHOTS OF EQUIPMENT —TRY TO SHOW MOVEMENT</td>
<td>You won’t feel anything during the radiatio treatment, but you may notice that the machines move or make noises.</td>
</tr>
<tr>
<td>56</td>
<td>SLIDE: COBALT MACHINE WITH PATIENT</td>
<td>The cobalt machine, for example, often makes a loud noise. This noise results from a burst of compressed air and is part of the machine’s normal operation. (EFX- SOUND COBALT MACHINE MAKES)</td>
</tr>
<tr>
<td>57</td>
<td>SLIDE: PATIENT UNDER EQUIPMENT</td>
<td>During the treatment itself, which usually takes only a minute or two, you’ll be alone in the room. However, the technologist can see you and hear you on a closed-circuit TV monitor. And, you can talk to the technologist through a microphone in the machine.</td>
</tr>
<tr>
<td>58</td>
<td>SLIDE: C.U.—TV MONITOR</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>SLIDE: TECHNICIAN TALKING WITH PATIENT</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>SLIDE: DOCTOR WRITING PATIENT’S RECORDS—O.S.</td>
<td>As treatment progresses, your doctor may suggest some changes in the schedule depending on your response or reaction to treatment. If you’re confused about any change in your schedule, ask the technologist or radiation oncologist.</td>
</tr>
<tr>
<td>61</td>
<td>SLIDE: PATIENT ASKING QUESTION</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>SLIDE: L.S. OF MEDICAL CENTER</td>
<td>At times, you may be referred to other specialists of the hospital for medical care.</td>
</tr>
<tr>
<td>SLIDE #</td>
<td>VISUAL DESCRIPTION</td>
<td>AUDIO</td>
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<td>-------</td>
</tr>
<tr>
<td>(63)</td>
<td>COPY STAND: &quot;RADIATION DANGER&quot;</td>
<td>Some patients worry about receiving too much radiation. To prevent this from happening, the equipment is checked on a regular basis, and the amount of exposure carefully calculated.</td>
</tr>
<tr>
<td>(64)</td>
<td>SLIDE: EQUIPMENT BEING CHECKED BY PHYSICIST</td>
<td>During each treatment session, the technologist will preset the machine and check to make sure the correct amount of radiation is given.</td>
</tr>
<tr>
<td>(65)</td>
<td>SLIDE: TECHNICIAN AT CONTROLS</td>
<td>The machine will stop automatically when the proper amount has been given.</td>
</tr>
<tr>
<td>(66)</td>
<td>SLIDE: CU-PANEL</td>
<td>After the treatment, you should stay in position until the technologist re-enters the room.</td>
</tr>
<tr>
<td>(67)</td>
<td>SLIDE: TECHNICIAN RETURNING TO ROOM WITH PATIENT STILL ON TABLE</td>
<td>When you leave the room, you will not be radioactive.</td>
</tr>
<tr>
<td>(68)</td>
<td>SLIDE: PATIENT MEETING FAMILY AFTER TX</td>
<td>Even though you may not see your radiation oncologist every time you visit, he'll be kept informed of your progress on a regular basis.</td>
</tr>
<tr>
<td>(69)</td>
<td>SLIDE: PHYSICIAN REVIEWING CHART WITH TECHNICIAN</td>
<td>You may not notice an immediate improvement in your condition. Sometimes the treatment effects aren't apparent for several weeks.</td>
</tr>
<tr>
<td>(70)</td>
<td>SLIDE: PATIENT UNDER LIN. ACC.</td>
<td>Often, the radiation treatment will produce side effects. You should report any side effects to either the nurse or the radiation oncologist, so that they may help you manage them.</td>
</tr>
<tr>
<td>(71)</td>
<td>ILLUS.: RED AREA ON SKIN</td>
<td>Also, your information packet contains a booklet with helpful hints about managing side effects.</td>
</tr>
<tr>
<td>(72)</td>
<td>COPY STAND: C.U. ARTICLE IN BOOKLET</td>
<td></td>
</tr>
<tr>
<td>SLIDE #</td>
<td>VISUAL DESCRIPTION</td>
<td>AUDIO</td>
</tr>
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</tr>
<tr>
<td>(73)</td>
<td>SLIDE: RECEPTIONIST WITH PATIENT</td>
<td>After you've completed your last treatment, a follow-up appointment will be scheduled for you.</td>
</tr>
<tr>
<td>(74)</td>
<td>SLIDE: DOCTOR WITH PATIENT</td>
<td>The follow-up appointment is very important. Your oncologist will want to examine you and ask some questions about how you've been feeling to make sure you're healing properly and that your recovery is proceeding normally. Your regular doctor will receive a report on the results of your treatment.</td>
</tr>
<tr>
<td>(75)</td>
<td>SLIDE: DOCTOR EXAMINING PATIENT</td>
<td></td>
</tr>
<tr>
<td>(76)</td>
<td>MULTI-IMAGE: TECHNICIANS WORKING, ETC.</td>
<td>We hope this brief orientation has been helpful to you. If you have any questions at all, please feel free to ask any of the staff members. And don't forget to read the material we've prepared for you.</td>
</tr>
<tr>
<td>(77)</td>
<td>COPY STAND: INFORMATION PACKET</td>
<td></td>
</tr>
<tr>
<td>(78)</td>
<td>MULTI-IMAGE: ENTIRE STAFF</td>
<td>All of us are available to help make your stay as pleasant as possible.</td>
</tr>
</tbody>
</table>
Written by
Roderick M. Kramer
Office of Cancer Communications

Special thanks to:

Richard J. Steckel, M.D.
Director, Jonsson Comprehensive Cancer Center

Joseph W. Cullen, Ph.D.
Deputy Director, Jonsson Comprehensive Cancer Center

Robert G. Parker, M.D.
Chairman, Department of Radiation Oncology

UCLA
A Production of
UCLA Office of Instructional Development

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National Cancer Institute
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APPENDIX 2

ASSESSMENT INSTRUMENTS
PATIENT INFORMATION QUESTIONNAIRE

ID Number* Date ____________________________

1. ____ Age
2. Sex:  M  F

3. What is your current marital status? (Please check one)
   ___ Married  ___ Separated
   ___ Widowed  ___ Never Married
   ___ Divorced  ___ Living together as married

4. What is your ethnic or racial background? (Please check one)
   ___ Caucasian, not Spanish speaking
   ___ Caucasian, Spanish speaking
   ___ Black
   ___ Asian
   ___ Other
      (Please specify)

5. What is the highest grade you completed in regular school or college? (Please circle one)
   
   No formal school 0
   Grade School 1 2 3 4 5 6 7 8
   High School 9 10 11 12
   College & Graduate School 13 14 15 16 17 18 19 20+

6. Are you currently employed? (Please circle one)
   Yes          No

* Responses to this and all other questionnaires in this study are totally anonymous. The I.D. number is assigned only to insure that all information collected from you at this and subsequent visits will be kept together and not confused with other patients' responses.
7. If Yes: Do you work part-time or full-time? (Please circle one and enter the appropriate information.)

part-time ___________________________ (number of hours per week)

full-time ___________________________ (number of hours per week)

8. If No: Which of the following describes your situation? (Please circle one)

Looking for work Retired

Student Manage household

Too ill to work, disabled Active volunteer work

Other (Please specify)

9. What kind of work do you do or did you do? What is or was your main occupation called?

   ________________________________________________________________

   Occupation

10. Which category represents your total household income last year? Include income from all sources and before taxes. (Please circle one. If uncertain, what would be your best estimate?)

   1. Under $5,000
   2. $5,000 - $5,999
   3. $6,000 - $7,999
   4. $8,000 - $9,999
   5. $10,000 - $11,999
   6. $12,000 - $14,999
   7. $15,000 - $19,999
   8. $20,000 - $24,999
   9. $25,000 - $29,999
  10. $30,000 and over
INSTRUCTIONS: The following are some statements on feelings, attitudes, and behavior. Read each statement and decide if it is true or false in reference to yourself. Circle "T" if the statement is true and "F" if it is false.

Be honest, but do not spend too much time with any one statement. As a rule, first impressions are as accurate as any.

1. I tend to keep on a thing until others lose their patience with me. T  F
2. I frequently find myself worrying about something....................... T  F
3. I sweat very easily even on cool days................................. T  F
4. I think of ways to get even with certain people..................... T  F
5. Most people who know me would say I am a cheerful person....... T  F
6. I find discussions about sex slightly annoying..................... T  F
7. I usually have to stop and think before I act, even in trifling matters.................................................. T  F
8. Sometimes when I am feeling well I am cross......................... T  F
9. I am more of a "happy-go-lucky" person than a deep thinker....... T  F
10. I try to plan in advance what to do if certain threatening situations were to arise.......................................... T  F
11. I work under a great deal of tension.................................. T  F
12. When things go wrong, I cannot rest until I've corrected the situation................................................................. T  F
13. I like to let people know where I stand on things............... T  F
14. When I leave home I tend to worry about such things as whether the door is locked and the windows closed..................... T  F
15. I am not easily awakened by noise...................................... T  F
16. I have very few quarrels with members of my family............... T  F
17. I rarely wonder what hidden reason another person may have for doing something nice for me........................................ T  F
18. I am not often troubled with disturbing thoughts.................... T  F
19. I have daydreams that I make a fool of someone who knows more than I do................................................................. T F
20. I never get angry................................................................. T F
21. Everything is turning out just as the prophets of the Bible said it would................................................................. T F
22. People have too much sex on their minds............................ T F
23. I sometimes tease animals.................................................. T F
24. Most nights I go to sleep without thoughts or ideas bothering me... T F
25. I tend to get along well with people and I am liked by almost everybody................................................................. T F
26. Bad words, often terrible words, come into my mind and I cannot get rid of them................................................................. T F
27. I have a habit of counting things that are not important, such as bulbs on electric signs, and so forth................................. T F
28. Sex education should not be part of the high school curriculum..... T F
29. I never get so mad as to feel like beating or smashing things...... T F
30. I almost never think of things too bad to talk about................. T F
Below are beginnings of sentences. You are to finish the sentences. You may finish the sentences so that they say anything you wish. Do not take too much time on any one item. Usually your first thought is best. Do not skip any of the items.

1. My favorite activity is ____________________________
2. A crippling disease ____________________________
3. If I am ignored ____________________________
4. Hospitals ____________________________
5. My greatest fear is ____________________________
6. The nicest person ____________________________
7. Poor health is ____________________________
8. I argue with people when ____________________________
9. Being in an accident ____________________________
10. A man's body ____________________________
11. Teachers are ____________________________
12. Being sick is ____________________________
13. I get most angry when ____________________________
14. When I feel pain ____________________________
15. I hate ____________________________
16. Books ____________________________
17. If I were struck ____________________________
18. An operation is ____________________________
19. I cannot control myself when ____________________________
20. If I were injured ____________________________
21. Sports are ____________________________
22. When I think about sex ____________________________
23. Going to the dentist

24. I could hit a person who

25. I despise

PLEASE MAKE SURE YOU HAVE COMPLETED EACH ITEM. THANK YOU.

NOTE: For scoring criteria, see Appendix 3.
Below is a list of words that describe feelings people have. Please read each one carefully. Then fill in ONE space under the answer to the right which best describes HOW YOU HAVE BEEN FEELING DURING THE PAST WEEK INCLUDING TODAY.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Friendly</td>
<td>23.</td>
</tr>
<tr>
<td>2.</td>
<td>Tense</td>
<td>24.</td>
</tr>
<tr>
<td>3.</td>
<td>Angry</td>
<td>25.</td>
</tr>
<tr>
<td>5.</td>
<td>Unhappy</td>
<td>27.</td>
</tr>
<tr>
<td>6.</td>
<td>Clearheaded</td>
<td>28.</td>
</tr>
<tr>
<td>7.</td>
<td>Lively</td>
<td>29.</td>
</tr>
<tr>
<td>8.</td>
<td>Confused</td>
<td>30.</td>
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<tr>
<td>9.</td>
<td>Sorry for things done</td>
<td>31.</td>
</tr>
<tr>
<td>10.</td>
<td>Shaky</td>
<td>32.</td>
</tr>
<tr>
<td>11.</td>
<td>Listless</td>
<td>33.</td>
</tr>
<tr>
<td>12.</td>
<td>Peeved</td>
<td>34.</td>
</tr>
<tr>
<td>13.</td>
<td>Considerate</td>
<td>35.</td>
</tr>
<tr>
<td>14.</td>
<td>Sad</td>
<td>36.</td>
</tr>
<tr>
<td>15.</td>
<td>Active</td>
<td>37.</td>
</tr>
<tr>
<td>16.</td>
<td>On edge</td>
<td>38.</td>
</tr>
<tr>
<td>17.</td>
<td>Grouchy</td>
<td>39.</td>
</tr>
<tr>
<td>18.</td>
<td>Blue</td>
<td>40.</td>
</tr>
<tr>
<td>19.</td>
<td>Energetic</td>
<td>41.</td>
</tr>
<tr>
<td>20.</td>
<td>Panicky</td>
<td>42.</td>
</tr>
<tr>
<td>21.</td>
<td>Hopeless</td>
<td>43.</td>
</tr>
<tr>
<td>22.</td>
<td>Relaxed</td>
<td>44.</td>
</tr>
</tbody>
</table>

45. Desperate
46. Sluggish
47. Rebellious
48. Helpless
49. Weary
50. Bewildered
51. Alert
52. Deceived
53. Furious
54. Efficient
55. Trusting
56. Full of pep
57. Bad-tempered
58. Worthless
59. Forgetful
60. Carefree
61. Terrified
62. Guilty
63. Vigorous
64. Uncertain about things
65. Bushed

MAKE SURE YOU HAVE ANSWERED EVERY ITEM
**NOTE:** After each feeling word, five response categories appeared for the patient to indicate his response. They were: Not at all, A little, Moderately, Quite a bit, Extremely.
SELF-EVALUATION QUESTIONNAIRE
Developed by C.D. Spielberger, R.L. Gorsuch and R. Lushene
[State-Trait Anxiety Inventory - State]

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1. I feel calm
2. I feel secure
3. I am tense
4. I am regretful
5. I feel at ease
6. I feel upset
7. I am presently worrying over possible misfortunes
8. I feel rested
9. I feel anxious
10. I feel uncomfortable
11. I feel self-confident
12. I feel nervous
13. I am jittery
14. I feel "high strung"
15. I am relaxed
16. I feel content
17. I am worried
18. I feel over-excited and "rattled"
19. I feel joyful
20. I feel pleasant

[NOTE: After each item, the patient indicated his answer according to the following categories: "Not At All," "Somewhat," "Moderately So," "Very Much So"]
DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the state to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

21. I feel pleasant  [NOTE: After each item, the patient indicated his answer according to the following categories: "Almost Never," "Sometimes," "Often," "Almost Always"

22. I tire quickly

23. I feel like crying

24. I wish I could be as happy as others seem to be

25. I am losing out on things because I can't make up my mind soon enough

26. I feel rested

27. I am "calm, cool, and collected"

28. I feel that difficulties are piling up so that I cannot overcome them

29. I worry too much over something that really doesn't matter

30. I am happy

31. I am inclined to take things hard

32. I lack self-confidence

33. I feel secure

34. I try to avoid facing a crisis or difficulty

35. I feel blue

36. I am content

37. Some unimportant thought runs through my mind and bothers me

38. I take disappointments so keenly that I can't put them out of my mind

39. I am a steady person

40. I get in a state of tension or turmoil as I think over my recent concerns and interests
PLEASE CHECK THE RESPONSE THAT BEST DESCRIBES YOUR OPINION

I feel I am well informed about the radiation therapy procedure.

____ Definitely yes  ____ Probably yes  ____ Probably not  ____ Definitely not

I feel I am well informed about side effects of radiation therapy.

____ Definitely yes  ____ Probably yes  ____ Probably not  ____ Definitely not

I feel I am well informed about what radiation therapy can do for my illness.

____ Definitely yes  ____ Probably yes  ____ Probably not  ____ Definitely not

I would like to know more about radiation therapy.

____ Definitely yes  ____ Probably yes  ____ Probably not  ____ Definitely not

If you were to receive further information about radiation therapy, which of the following sources would be your preferred sources for further information? (Please rank your first three choices. Please a "1" beside the most preferred source, a "2" beside your next preferred choice, and a "3" beside the third.)

____ Written materials (pamphlet, book)

____ Audiovisual presentation (videotape, slide-tape show)

____ A former radiation therapy patient

____ A nurse from the department

____ A physician from the department

____ Cancer Information Service (a toll-free telephone information service staffed by trained volunteers)

____ Others (Please specify) ____________________________
RADIATION THERAPY QUESTIONNAIRE

PLEASE CIRCLE "TRUE" (T) OR "FALSE" (F) FOR EACH OF THE FOLLOWING:

T  F* 1. Only cancerous cells are sensitive to radiation.
T* F 2. As part of their normal operation, some of the radiation machines may make loud noises.
T  F* 3. During treatment, the radiation technologists are not in the treatment room with the patient and cannot see or hear the patient.
T* F 4. The machines will stop automatically when the proper amount of radiation has been given.
T  F* 5. As soon as the machine stops, the patient is free to move around or to leave the treatment room.
T  F* 6. When the patient leaves the treatment room, he or she will be radioactive.
T* F 7. As part of the treatment planning, lead shields may be custom made for the patient's body to protect healthy tissue from the radiation.
T* F 8. It may take several weeks before the beneficial effects of the radiation treatment become apparent.
T* F 9. Radiation therapy can produce some unpleasant side effects.
T  F* 10. Radiation therapy works by using heat to burn away cells.
T* F 11. Radiation treatment may cause the patient's skin to become reddened or sunburned.
T* F 12. Radiation can also reduce symptoms caused by cancer, such as pressure, bleeding, and pain.
T  F* 13. The dye used to mark the precise treatment area may be washed off between treatment sessions.
T  F* 14. The treatment rooms are deliberately kept cool, about 72 degrees; this is necessary for the radiation to effectively kill the cells.
T  F* 15. The radiation therapy received by the patient can be harmful to anyone coming in close contact with the patient.
Radiation Questionnaire (Continued)

PLEASE PLACE A CHECK ( ) BY THE CORRECT ANSWER.

16. Radiation treatment itself:
   __ a. is somewhat painful.       X  c. does not hurt at all.
   __ b. is very painful.            __ d. can be painful, but it varies
   from person to person.

17. During one external radiation treatment session, the patient will be
    exposed to radiation for a period of:
   X  a. only a few minutes.       __ c. over an hour
   __ b. about an hour              __ d. can vary from a few minutes to
   over an hour.

18. Treatment planning usually takes place in a simulation room. The purpose
    of the simulations is to:
   __ a. determine which dose of radiation is most appropriate.
   X  b. find the proper position for the radiation equipment.
   __ c. check the patient's tolerance to radiation therapy.
   __ d. all of the above.

19. During simulation, the technologist may place lead tape around the
    treatment area.
   __ a. This prevents the radiation from damaging healthy areas of the body.
   X  b. The lead tape shows up on the x-ray and helps determine that the
        equipment is properly positioned at the treatment area.
   __ c. The lead tape helps the patient remain in the same position during
        treatment
   __ d. All of the above.
Radiation Questionnaire (Continued)

PLEASE PLACE A CHECK ( ) BY THE CORRECT ANSWER.

20. The reasons you may have to wait several days before actual treatment begins is:
   __ a. to allow time for molds to be prepared and for completion of treatment planning.
   X b. there is a long waiting list and patients must wait for treatment openings.
   __ c. to process necessary hospital and insurance forms.
   __ d. all of the above.

21. "Rad" refer to:
   X b. Radiation Absorbed Dose—the amount of radiation absorbed by tissue.
   __ c. An abbreviation for radiation.
   __ d. Radium Activated Device—a type of radiation therapy machine.
When you began radiation therapy, you were given a copy of the booklet pictured above. At this point in time, how much of the booklet have you read? Indicate the percentage by making a slash across the line below.

<table>
<thead>
<tr>
<th></th>
<th>0%</th>
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</tr>
</tbody>
</table>

[Booklet Self-Report]

[NOTE: A picture of the booklet, "Radiation Therapy and You," appeared in this space]
Annotated Version of De Long's Scoring Manual for the Coper-Avoider Sentence Completion Test

Revision Date: 11 October, 1981

Kourosh Maddahi and David A. Rapkin
Cancer Patient Education Research Project
Department of Psychology; Department of Surgery, Head and Neck Division;
Neuropsychiatric Institute; and Nursing Service
University of California, Los Angeles
We welcome comments and suggestions for revision from users of the manual and SCT. Please send such correspondence to David Rapkin, Division of Head and Neck Surgery, 15-50 Rehabilitation Center, University of California, Los Angeles, CA 90024.

The authors wish to express their thanks to Ramin Azadegan, Maria Ercilla, and Michelle Perfit for their assistance in developing the manual.
2. A crippling disease

2's. Responses are direct and personal or contain expression of intense emotion.

Examples:

is a sad thing to have
is a handicap
is a tragedy
disturbs me
terrifies me
is very painful
is terrible
is something I have lived with most of my life
is horrible
is frightening
horrible
dead

1's. In this category responses are not as personal or as emotionally intense as are 2's. Respondents do not see stem as having to do with themselves directly, but as something happening to others.

Examples:

is bad
is my greatest concern for everyone
can be overcome sometimes
is a bad misfortune
is jealousy
needs attention
is something I would like to prevent
is usually very painful
disabling

0's. In this category the items are seen as specific diseases over which one may have no control. Responses contain no explicit expression of emotion.

Examples:

is polio
God's will
I get around very well
a bad heart
should be eradicated by medicine
I don't have any
I never think about being crippled
is heart disease
blind
can't think of one
arthritis
no
leukemia

3. If I am ignored

2's. Respondents indicate intense, personal response to being ignored

Examples:

I feel hurt
I get very upset
I resent it
it hurts me
I get upset
I get mad
bad
hurt
I feel bad

1's. In this category, respondents express personal reactions to being ignored but these reactions are less emotionally intense than 2 responses. Responses may indicate methods of coping with negative feelings.

Examples:

I feel self-conscious
I don't like it
I feel sorry
I may be unhappy but not for long
I'm blue
Well, I ignore the person too
I resent it sometimes
I try to take it in my stride
I feel sad
I become silent
I don't like being ignored too much
I ignore them back
I may sometimes feel badly
I pout
I feel hurt but occupy my mind elsewhere
I get a little upset
It bothers me
0's. In this category there is no direct expression of emotion. Responses can be interpreted either as denial of feelings or indications of being unaffected.

Examples:

It's alright
so what
I don't pay no attention
I don't worry
it doesn't bother me
I do something else
I can amuse myself
I forget it
I feel relaxed
so I am
I don't think about it twice
I'm not ignored

4. Hospitals

2's. In this category respondents indicate strong emotional (probably negative) reactions which may or may not be personalized.

Examples:

afraid
are somewhat frightening
I don't like to go to them
are frightening
scare me
are horrible
make me blue
I would not like to be in one
I don't like them but I sometimes have to go

1's. In this category respondents' offer value judgements of hospitals, describe them as a place for others to be cured and a place that is useful or essential to society. Moderate expressions of emotion, even if personalized, appear to be scored as 1's. (An explicit indication that a respondent may have to go to hospital her/himself would be scored 2.)
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Maddahi and Rapkin, Revision Date: 11-October-1981

Examples:

sickness
are for caring for the sick
not too keen on them
are necessary
are good for the sick
we need them
are for the birds
are plentiful, some good, some bad
are o.k.
fine if you need them
best place to be if you need one
sickness and help
I dislike them
are sad places
are for sick people
are very necessary
are usually expensive
helpful
are essential

0's. In this category there is no direct expression of emotion.
Hospitals are not explicitly associated with pain, sadness, fear, or
disease. Respondents describe characteristics of hospital buildings.
While not explicitly mentioning disease, respondents describe
hospitals as representing return to health.

Examples:

I have confidence in all hospitals
are usually good healthy institutions
are very clean
to get well in
have come a long way
are easy to get lost in
bore me
don't scare me
are wonderful

5. My greatest fear is:

2's. In this category respondents relate fear to potential harm to
themselves or those very close to them. A sense of helplessness may
be communicated.
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Maddahi and Rapkin, Revision Date: 11-October-1981

Examples:

leaving my children
losing my children
the future of my children
dying
hospitals
when I am sick
this operation and my son in Vietnam
being an invalid
becoming helpless
surgery
death
anything happening to my family
pain
losing my husband
having another baby

1's. In this category specific situations responsible for causing respondents' fear may be mentioned. These situations may be such that they can be avoided.

Examples:

being alone
lightening and thunder
financial insecurity
driving
becoming bedridden
flying in an airplane
I have fears
getting struck by a snake
disability
missing out on something
a cat to jump on me
worry over things
water
I really can't pinpoint a fear that I would consider my greatest

0's. In this category fear may be expressed regarding vague or abstract things or may be denied. Emotional tone is neutral.

Examples:

I don't have any
I'm not afraid of things
facing the unknown
none
the way the war is going
got no fear
I have none
I really don't know

7. Poor health is:

2's. In this category responses indicate very strong, negative reactions. Poor health may be described in calamitous terms. Responses do not need to be explicitly personalized.

Examples:

a terrible thing to live with
terrible
a terrible misfortune
something I hope I don't have to live with
something I don't want
frightening
miserable
pain
ugly

1's. In this category expression of emotion is much less intense than for 2 responses. Consequences of poor health may be indicated.

Examples:

uncomfortable
very annoying
bad
something to be concerned over
sad
not pleasant
a very bad thing if you have poor health
a pity
a bore
discouraging to active people
unfortunate
depression
very hard to accept
miserable
not to be desired
hard on people

0's. In this category respondents present definitions or explanations of poor health. Personal involvement may be explicitly denied.
Examples:

when you stay sick
mine's alright so far
physical, emotional and spiritual
something I don't have
being ill all the time
sickness
because of lack of sleep
someone that don't feel well
that don't feel well
common amongst the poor
something I don't think of

8. I argue with people when

2's. In this category responses clearly indicate a negative emotional response which may or may not result from another person's behavior.

Examples:

y they lie or upset me
I'm upset
I'm nervous or upset
I'm angry
they say something to make me mad
I get mad

1's. In this category respondents omit their own emotional reactions and focus on the correctness of their positions and/or the negative behavior of the other person.

Examples:

I disagree with them
they hurt others
I think it necessary
there is no other choice
I think I'm right
they are absurd
they become obnoxious
I feel they are wrong
they are unfair
I know I am right
I see an injustice
they don't think straight
they insist they are always right
its necessary to show my point
they argue with me
I want them to do what's best
I think they are wrong
necessary
I really have to
I get tired
they don't see it my way
I shouldn't

0's. In this category respondents deny involvement with the issue or deny negative emotions.

Examples:

I don't usually argue
I don't
I don't argue
very seldom
I feel good
never
I never argue, I try to be nice

9. Being in an accident

2's. In this category responses are emotionally intense though they may not be explicitly personalized. Responses communicate a sense that the emotional impact of an accident is great.

Examples:

is tragic
fear
is terrible
is awful
would be frightened
is frightening
is disturbing and frightening
is a terrible experience
shapes you up
is terrifying
scares me
is frightful

1's. In this category intensity of emotional expression is much less than in 2 responses. Expressions are not personalized. Responses may indicate awareness of possible consequences of accidents, but these are usually described in muted terms.
Examples:

is sometimes fatal
is quite an experience
must be frightening
financially difficult for family
I've never been in one
is an unpleasant experience
unfortunate
is unpleasant
I try not to be
is scary
is sometimes unavoidable
could cause discomfort
is a disturbing idea
makes me nervous
not good
can cause disability

0's. In this category responses may be vague, may communicate a sense of denial and lack of emotion.

Examples:

creates unnecessary confusion
has never happened
car
I don't know

10. A man's body

2's. In this category respondents express strong, possibly personalized feelings about a man's body.

Examples:

is beautiful
is not a thing of beauty
is sexy
is great
ugly
is comforting to touch
husband
is great when it's the right man

1's. In this category responses are more detached, less human—even mechanical—than are 2 responses. Intensity of emotional expression is much less than for 2's.
Examples:

never made much difference to me
clean
is a precious thing to him
is a very great work of art
is a wonderful machine
should be kept well and clean
should be healthy
in a way o.k.
need not be beautiful
is not pretty

0's. In this category there is no direct expression of emotion.
Responses indicate detachment or indifference.

Examples:

I don't know
needs nourishment for good health
is God's creation
are different
is his own business
is his property
represents men
should be left to science
I don't understand
is his own to take care of
is large

12. Being sick is

2's. In this category respondents express very intense, negative feelings about being sick which may or may not be personalized.

Examples:

terrible
the most horrible way of living
sad and burdensome
disgusting
bad
maddening to me
something I really hate
awful
I hate this feeling
1's. In this category responses are moderately intense and usually aren't personalized. Responses may mention consequences of being sick rather than their feelings. A sense of indifference may be conveyed.

Examples:

- nervous and upsetting to someone
- confining
- unpleasant
- a problem
- never a pleasant experience
- no fun
- trouble for the birds
- annoying
- not what I like
- boring
- not for me
- sad
- hard
- something I try to overcome
- not too nice
- no good
- an inconvenience
- taxing on the nerves

0's. In this category responses may be definitions or blandly philosophical. Intensity and personalization are both absent.

Examples:

- well, depends
- something wrong with the person
- a part of life
- being in bad health

13. I get most angry when:

2's. In this category responses implicate another person who is directly causing harm or aggravation. Intense expression of emotion can also cause a response to be scored 2.

Examples:

- someone tries to put me down
- people tell me how to run my life
- my kids don't listen to me
- someone tries to take advantage of me
In this category, responses can implicate irritating—but not harmful—behavior by others, negative emotional states within respondents, problems caused by oneself, harmful behavior directed at others, or objectively unpleasant situations.

Examples:

- someone thinks they know everything
- I am late
- bugged
- I see an injustice done
- someone is offensive
- feeling pushed beyond my strength
- I'm hungry
- I'm nervous
- I make silly mistakes
- I lack rest
- somebody touches me
- my house is not clean
- parents neglect their children
- I'm needled
- someone bothers me
- people refuse to admit they're wrong
- nothing goes right
- I lose control
- I run into discrimination
- I see people being hurt
- I am sleepy
- I meet ignorant people
In this category, responses deny anger.

Examples:

I don't
I don't get angry
never

14. When I feel pain

2's. In this category responses indicate significant distress.

Examples:

I am upset
I cry
I go to pieces
I get depressed
I can't stand it
it makes me unhappy
I get scared
I worry
I hate it
I hurt all over

1's. In this category responses focus on dealing with pain, confronting or accepting it, or indicate moderate emotional responses.

Examples:

I try to make the most of it
I consider it a necessary part of living
I am uncomfortable
I take an aspirin
I go to the doctor
Moderately
I take it
I try to bear it
I react
I try to relax
I want it to go away
I'm dependent on others
I don't complain too much
I become annoyed
I try to cope with it
do not like discomfort
I probably frown
0's. In this category responses communicate a sense of avoidance or denial.

Examples:

I go to sleep
not often
I ignore it
I try to suppress it
I try not to think about it
so, I don't feel good

15. I hate

2's. In this category respondents indicate hatred for that which is causing pain or frustration in their lives. Expressions need not be explicitly personal.

Examples:

operations
mostly how and why I react to things
to live by myself
being incapacitated
my husband when I get mad at him
to be sick or see my family unhappy
being sick
pain
bigots and bigotry

1's. In this category responses deal with more objective, less personal, less difficult or dangerous situations. Responses may indicate more specific or focused situations.

Examples:

to be around a dirty place
ethnic jokes
bad things
bickering
selfish people
frauds
indolence
gossips
arguments and confusion
to use this word, would rather say dislike
people with two faces
dirty pictures
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a dirty house
to see children sick
stupidity
anything unpleasant
people with bad manners
this war
trash in book and on t.v.

0's. In this category responses express hatred of trivial things (e.g. personal dislikes) or show denial and/or lack of emotion.

Examples:

no one
I don't hate
smog
nothing
any kind of seafood
hate is no good for mind or body
certain t.v. shows
to iron
nothing, really
to clean house
one shouldn't hate
not at all

17. If I were struck:

2's. In this category responses indicate retaliation and/or strong emotional reactions.

Examples:

I would strike back
I would hit back
I'd probably strike back
I'd strike back if possible
I would be angry

1's. In this category responses indicate retaliation in much more moderate terms or focus on respondents' more moderate emotional reactions to being struck.
Examples:

cry
I'd call for help
I would be upset
I would cry
I probably would feel bad
by another person, I would defend myself
I would be in pain
I would be unhappy
I think I'd be shocked
It would hurt
I hope there is somebody to help
I would scream

0's. In this category responses are unemotional, passive and/or distanced.

Examples:

I don't know
work my way out
I'm not sure what I would do
by a car, it would shock you
By what? a car?
well, depends on my mood
with a dread disease, make most of it
I'd just go away
no
hope it's not a train
I would just take it

18. An operation is:

2's. In this category responses describe an operation in intensely emotional terms and may allude to possible danger. Responses need not be explicitly personalized but often are.

Examples:

terrible
frightening
me
frightening, I hope I wake up
something I am afraid of
unknown and frightening
awful
something I have to face and recover from
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1's. In this category responses indicate the beneficial potential, moderately negative aspects, or the necessity of an operation.

Examples:

important
wonderful if necessary
to be performed when absolutely necessary
unpleasant
unfortunate
essential
to your best advantage
a must, sometimes
necessary
to make a person feel better
to correct illness
o.k. to have good health
being helped
sometimes the only way out
a necessity at this point
sometimes necessary to have good health
most unpleasant
a nuisance
an unpleasant occurrence in one's life
necessary I guess
I dislike
no good to have
sometimes painful
something to think seriously about

0's. In this category responses communicate a sense of lack of fear and concern for the danger involved in an operation. Responses are not personalized.

Examples:

necessary at all times
just another part of life
another way of correcting what's wrong
for sick people
fixing up something
a maneuver of any kind

19. I cannot control myself when:

2's. In this category responses refer to a strong emotion, expression of emotion, or an emotional state.
Examples:

I lose my temper
in pain
kids make noise (mine)
I cry
I get excited
I get angry
I am frightened
I am hurt

1's. In this category expressions of emotion are less intense than for responses scored 2. Responses also can address an objective situation which causes the loss of control.

Examples:

children are mistreated
I see blood
I get nervous
I get emotional
I'm overwhelmed
I don't have enough sleep
I lose my cool
I'm happy
People take advantage of others
everything seems to go wrong
I see an animal abused
there is clutter at home
I see people pick on one another

0's. In this category the potential for loss of control is denied or minimized.

Examples:

mostly at all times
almost always I do
I keep myself controlled
I always can
I never lose control
I can't recall a time when I couldn't control myself
all the time, I got my control
then I withdraw
never
try to control myself always
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20. If I were injured:

2's. In this category responses express significant distress.

Examples:

I would worry
a terrible thing
I'd be upset
I would be scared

1's. In this category responses indicate moderate distress and/or focus on coping with an injury.

Examples:

hope it's not too bad
I would come to the hospital
I'd resign myself to that
painful
sad
I'd call for help
I would probably cry
I'd do the best I could
I'd go to get help
I'd hope I'd recover
I would want to go to the hospital
I would have to be laid up
I would like company
I would be unhappy
I would seek immediate care
it could be inconvenient for my family
I would try to make the best of it
I try to be a good patient

0's. In this category responses may be blandly philosophical, emotionally indifferent, or express optimism about the result.

Examples:

just one of those things that happens
I will be cured

22. When I think about sex:

2's. In this category responses express clear, strong feelings, usually positive, and/or may refer to their sex partner.
Examples:

I think of pleasure
sex is wonderful
it's good for me
it turns me on
I feel sick
it brings pleasant memories
it's with my husband
man
husband
great
it is very exciting
I just think of it now that I'm sixty

1's. In this category respondents indicate more moderate or ambivalent feelings, abstract evaluations of sex, or denial of strong feelings.

Examples:

it's alright in its place
it's sometimes good and sometimes bad
mixed feelings
I think it's a healthy outlet
well, I think it's important
that means a lot to a person's life
normal
it good
sometimes it bothers me
I do not feel guilty
nice
in school good for the kids
I like it
I wish my parents had talked to me
I ask how to teach my children about it
I think about today's movies
it's natural

0's. In this category respondents deny interest in, involvement with, or the importance of sex.
Examples:

I don't know
I don't think of it
I am not interested
I don't, think of being dirty
not much
it's not important really
I don't think about sex

23. Going to the dentist

2's. In this category responses express intense fear or other negative emotion.

Examples:

traumatic
scares me
is a painful thing
is frightening
frightens me
is a queezy feeling
bothers me
is like going to my death
makes me shudder
is almost terrifying to me
is one of my fears
I hate to go

1's. In this category responses contain a lesser degree of negative emotion than responses scored 2. Respondents may describe going to the dentist as important, or as neutral. Responses may express moderately negative emotions or describe visiting the dentist in intellectual terms, i.e. as important or necessary.

Examples:

O.K.
is important
is no fun
I don't mind, got false teeth
is not so bad
is something we have to do
when necessary
is routine
makes me nervous
to fix my teeth
can be unpleasant
is a chore
I don't like
is not very exciting
just went, doesn't scare me
dislike it

0's. In this category responses explicitly deny negative feelings or difficulties.

Examples:

- does not frighten me
- does not bother me
- is no problem

24. I could hit a person who

2's. In this category respondents implicate another person who directly threatens them or people close to them. Emotional intensity is high.

Examples:

- hit me
- makes me mad
- threatens me
- uses abusive language or strikes me
- try to attack me
- hurt me or my family
- scares me
- made me angry and upset
- lies to me

1's. In this category responses indicate a (usually more) moderate threat, usually to the welfare of others or of society at large.

Examples:

- yells
- mistreats children
- is unkind to elderly or ill people
- has a nasty tongue
- dislikes children
- are silly
- have to give me awful bad reason to do so
- picks an argument
- abuses someone weaker
thinks they are better than anyone else
spreads rumors without knowing the truth
doesn't understand me
screams
drinks too much whiskey
hurts others
is rude
neglects children
is dishonest
abuses a priviledge

0's. In this category respondents indicate their unwillingness to hit another.

Examples:

I can't
I don't hit people
I couldn't hit anybody
I don't fight
I don't believe I could ever strike anyone
I never hit a person
no
no, I can't hit nobody

25. I despise

2's. In this category that which is despised is a direct, personal insult or injury.

Example:

Someone call me old

1's. In this category that which is despised is distanced and objective, people in general might agree that the thing in question is bad.

Examples:

people who treat children wrong
dirt
a person who is always late
people who are dishonest
people who think they know it all
bossy people
very few things
liars
a lot of things
crying
people who make fun of the handicapped
selfish and weak people
people who always want to fight
fighting
many things
laziness
snakes
gossip
people who are thoughtless
an unpatriotic person
war
a drunkard
deceit
pettiness
lies and dope
rudeness
ignorance

0's. In this category respondents deny despising anything, or may indicate something for which one has personal distaste but for which social consensus is absent.

Examples:

I can't think of anything right now
nobody
I don't know anything I despise
dressing
cooking
never use that word, no use to despise things
I don't despise
eggplant and liver
chocolate
no one
nothing
to wash dishes
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BIOGRAPHICAL SKETCH

Lawrence C. Rainey (b. 2-5-48) spent his early years in Des Moines, Iowa. Following graduation from public high school, he attended Wheaton College (Ill.) from 1966-1969. When the Dean of Students at Wheaton suggested (strongly) that another institution would be more appropriate as a place to continue his studies, Mr. Rainey transferred to Arizona State University. In addition to running pigeons through numerous laboratory procedures and collecting a B.A. in psychology ("with highest distinction"), he courted the young woman whom he had met three years earlier while both were visiting Amsterdam and who, one year later, would become his wife.

In September, 1970, the young Rainey took an important step in fulfilling part of a lifelong script (authored in good part by his religiously involved parents) by enrolling at Harvard Divinity School. Those were heady days at Harvard. God was said to be dead or dying, "the Revolution" was in full swing, and professors were not quite sure what they should, or could, teach. Rainey flourished. He studied the sociology of religion, psychology, contemporary theology, and community organization. Most important, he met men and women who were true scholars; they deeply impressed him. He never seriously considered becoming a clergyman but, like many of his colleagues at Harvard
Divinity, considered this as preparatory education before entering another professional field. For him that field was clinical psychology. He took his Master of Divinity (cum laude) and headed for the University of Florida.

Though his paternal grandfather had fought for the Confederacy beside General Lee, young Rainey had never lived south of the Mason-Dixon Line. What a shock! He survived by immersing himself in the study of clinical psychology. Some wonderful professors and fellow exiles from "up North" helped. During four years at the University of Florida, Rainey picked up a master's degree in psychology (1976) and completed all requirements for the doctorate except the dissertation.

For internship Mr. Rainey chose UCLA's Neuropsychiatric Institute. It proved to be a perfect setting for him. He became deeply involved in learning about medical psychology. Unlike many of his already "doctored" friends, he went to work the day after his internship ended. After eight consecutive years of graduate education, a job was just what he needed. He has worked since July 1, 1978, at the Division of Cancer Control, UCLA Jonsson Comprehensive Cancer Center. His current title is Program Director for Psychosocial Rehabilitation. In that capacity he is responsible for coordinating a variety of community outreach, patient education, and professional education programs dealing with the psychosocial aspects of cancer.
As a sideline, he has also become very involved over the past three years in clinical work with hyperobese patients. Between cancer and obesity he is learning something about stigma, among other things. In 1981 something "snapped" in Rainey, and he actually began working seriously on his dissertation. Friends were shocked. Maybe it was becoming a father. Maybe it was the recession. But through 1982 he could not be stopped. In late November, 1982, he deftly defended his doctoral project.

An oddity in Southern California, Mr. Rainey is happily married (11 years and counting) and has two children. He genuinely likes Los Angeles and resides in the Westwood portion of the city, near the UCLA campus.
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

[Signature]
Franz E. Epting, Chairman
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

[Signature]
Ben Barger
Professor of Psychology
and Clinical Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

[Signature]
Cynthia D. Belar
Associate Professor of Clinical Psychology
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Robert H. Hornberger
Associate Professor of Clinical Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Sheldon Isenberg
Associate Professor of Religion

This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December, 1982

Dean for Graduate Studies and Research