Factors contributing to adjustment and quality of life in women diagnosed with cancer

Althea L. Noukki

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FACTORS CONTRIBUTING TO ADJUSTMENT AND
QUALITY OF LIFE IN WOMEN DIAGNOSED WITH CANCER

by

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Factors Contributing to Adjustment

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Factors Contributing to Adjustment and Quality of Life in Women Diagnosed with Cancer.

Director: David Schuldberg, Ph.D.

The purpose of this study was to investigate the differences between women diagnosed with breast (BC), gynecological (GC), and other cancers (OC) on measures of adjustment in various life domains, and on measures of variables thought to contribute to adjustment. These include the specific characteristics of the illness, characteristics of the individual background, primary and secondary appraisals, social support, perceptions of cause and controllability, coping strategies, and other stressful life events. The experience of having cancer presents the individual with many types of stress, and gender-specific cancers may present the individual with unique challenges.

Subjects were recruited primarily from electronic discussion groups operated by the Association of Cancer Online Resources. Subjects were mailed questionnaires covering the variables of interest in this study; 49 BC patients, 37 GC patients, and 59 OC patients participated.

Group differences by diagnosis included that the GC patients, especially those with multiple occurrences of cancer, experienced greater emotional distress and physical debilitation. They were more likely to attribute the locus of control over their illness course to chance, and were more likely to appraise the situation as entailing a threat to their self-esteem and sense of femininity, as well as to their sex life and future fertility.

The strongest predictors of higher levels of emotional distress and poorer psychosocial adjustment were greater reliance on the coping strategies mental disengagement, behavioral disengagement, and venting about negative emotions; less social support, especially from friends and to a lesser degree from family; more negative life changes and fewer positive life changes; perception of any primary appraisal threat to a high degree or appraising the situation as one in which one has to hold back from doing something one wants to do; attributing the cause of the illness to bad luck or self-blame; attributing control over the illness course to chance; and creating less positive meaning out of the illness experience. A prior history of mental health difficulties and younger age were the only background variables associated with greater distress. For the most part, indicators of illness severity were not related to adjustment, with the exception of number of surgical procedures.

Implications and suggestions for future research are discussed.
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Introduction

The diagnosis and subsequent treatment of cancer is a highly stressful life event that presents individuals with challenges in many domains of their lives. In addition to the threat to physical health and integrity, emotional adjustment, self-perceptions, social relationships, vocational functioning, and financial stability can all be substantially affected (Muthny, Koch, & Stump, 1990). While it is common for cancer patients to experience some degree of emotional distress, such reactions are usually temporary, and the majority of individuals are able to make a satisfactory psychological adjustment to the diagnosis, treatment, and even the terminal phase of cancer (Lewis, 1989). However, a substantial minority experience symptoms of depression, anxiety, or disruptions of psychosocial functioning that can persist for years even after the successful completion of treatment (Glanz & Lerman, 1992).

Those individuals who are able to adapt successfully and continue to function in a positive and competent way in the face of significant stressors or risk factors might be called resilient (Egeland, Carlson, & Sroufe, 1993). While this concept has most frequently been applied to children from disadvantaged or abusive backgrounds (Luthar & Ziglar, 1991), in fact it has much wider applicability to understanding what makes certain individuals react differently to stress. Knowing the factors that promote successful adaptation both in general and with reference to specific problem situations may be the key to understanding how to intervene with various at-risk populations.
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Resilience is enhanced by both personal and environmental resources; those that are relevant to adjusting to the experience of cancer will be examined in this study.

There are many variables that are relevant to predicting which people will be vulnerable to emotional distress and which will be able to be resilient in the face of a particular life stress (Egeland, Carlson, & Sroufe, 1993; Falek & Britton, 1974; Luthar & Ziglar, 1991). While some of these variables have to do with the characteristics of the particular situation, this is complicated by the fact that most major life events present multifaceted sources of stress. Even within a given domain such as the threat to physical health posed by cancer, the actual nature of the stress this entails varies based on factors such as site, severity, and treatment options. Individuals who would adapt well to certain types of stressors may have problems with others, perhaps because they are less well equipped to deal with the unique challenges some stressors present. It is important to gain a better understanding of what characteristics might be more broadly adaptive as well as what might be required to deal with more specific problems or their components.

In particular, this study will examine the unique challenges that can be presented by breast and gynecological cancer above and beyond other types of cancer, and identify some of the factors that facilitate or impede satisfactory psychological adjustment to the various stresses that result from the experience of having these types of cancers. Women with breast or gynecological cancer will be compared with women with other cancer sites. While cancer patients share many common concerns, there are issues particular to these gender specific cancers that can impact adjustment in certain realms of life such as body
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image, intimate relationships, and self-perceptions. What is known about the influence of these various factors will be discussed in the following review of the literature.

Emotional Reactions to Physical Illness

Increasing attention has been paid in recent years to the role that psychological factors can have in promoting better physical health and influencing the course of physical illness (Cohen, 1990). Cognitive and psychosocial factors such as appraisals, coping strategies, social support, personality traits, and emotional reactions can affect mortality, morbidity, and general quality of life in physically ill patients. As a general rule, those who react with more distress to their illness will be more impaired by it (Mai, 1989). Emotional states may directly affect immune system functioning, as well as affecting the perception and interpretation of physical sensations. It has been proposed that individuals with life threatening illnesses who demonstrate a more hopeful attitude, or a "fighting spirit" survive longer than those who become hopeless and despondent (Greer, Morris & Pettingale, 1979), although this conclusion has been called into question due to some methodological problems in the original study (Royak-Schaler, 1992). In addition, it must be kept in mind that serious illnesses are inherently distressing and will evoke some uncomfortable emotions; fighting this natural part of the process and trying to keep up an artificially positive attitude may ultimately be worse for health (Dafter, 1996). Whether or not emotional reactions have an effect on longevity, a sense of hope, a feeling that life makes sense, and ability to find fulfillment in each present moment may
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significantly help people to improve their quality of life, and live better as well as living longer (Wood. 1996). Serious physical illnesses may evoke a range of reactions including depression, anxiety, denial, anger, fear of death, and helplessness (Guthrie. 1996; Falek & Britton. 1974: Wise & Rieck. 1993). Depression and anxiety in particular have received a good deal of research attention and will be discussed in turn.

Depression in Medical Populations

Prevalence rates of depression in general hospital samples have been estimated to be as high as 42% (Pitt. 1991). Depression is particularly associated with certain types of diseases, including cancer, as well as neurological disorders, endocrine disorders, hypertension, and diabetes (Mai. 1989; Moldin et al. 1993). Particular illnesses can have a direct physiological link to depression, in addition to psychological effects. Among women, particularly those who are older, married, and less educated, physical illness has been found to be a stressor that produces one of the most significant effects on psychiatric symptomatology (Vazquez-Barquero et al., 1992; Williamson & Schulz. 1992).

The incidence of depression increases with the severity of the physical illness (Pitt. 1991), particularly when it entails disability, restriction of normal activities, or chronic pain (Williamson & Schulz. 1992a; Williamson & Schulz. 1992b). Physical illness in and of itself may not lead to depression unless it is accompanied by significant changes in the individual's functioning, especially notable impairment or functional
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disability. This is not too surprising when it is considered that carrying on with normal
activities tends to counteract depression.

While the significant proportion of medical patients suffering from depression
attests to the tremendous impact that health problems can have on a person's overall well-
being, and to the connection between physiology and sense of well-being, the fact is that
the majority of patients with serious physical illnesses do not become depressed. Treating
physicians often view depression as an understandable and appropriate reaction to the
diagnosis of a serious physical illness (Woods & Lewis, 1995), not recognizing that not
only is this reaction avoidable, it can create additional problems when it is present.
Concurrent depression can seriously complicate an individual's medical symptomatology,
contributing to a slower rate of recovery, longer hospital stay, more rapid disease
progression or increased disability, and higher rates of mortality (Overholser et al., 1993:
Regan, Lorig, & Thoresen, 1988).

Although many people react to physical illness with some degree of emotional
distress, depression in medical populations is often under-identified and under-treated
(Overholser et al., 1993). This arises in part from the difficulty in assessing depression in
these populations, as well as the tendency, noted above, of some physicians to minimize it
as a "normal" reaction to such a stressful event. Assessment is complicated by the fact
that many of the somatic symptoms of depression, such as changes in sleep patterns,
appetite, libido, and fatigue, can be directly attributed to the effects of physical illnesses
or their treatments. Higher rates of depressive-like somatic symptomatology have also
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been associated with greater age and severity of illness (Karanci, 1988; Mai, 1989).
Thus, many illnesses can look like depression due to shared symptoms, as well as
sometimes causing depression physiologically. As a result, assessment focusing on the
cognitive and emotional components of depression can be helpful, although it should not
be assumed that individuals with primarily somatic symptomatology are not also
emotionally distressed, since they may be experiencing a masked depression.

Individuals who respond to the diagnosis of an illness with greater levels of
depression also tend to remain more depressed over time, perhaps in part because they
lack the motivation to engage in active coping efforts that would help them overcome the
depression (Schiaffino & Revenson, 1995), and possibly deal with the effects the illness
has had on other areas of their life. The experience of depression itself often erodes the
individual's coping resources and sense of self-efficacy, maintaining itself in a self-
perpetuating pattern. Higher initial levels of distress in response to a stressor may be
associated with the use of the more ineffective coping strategies, producing a downward
spiral effect that results in greater ongoing distress. As a result, it is important to identify
those ingredients that facilitate a person's successful adjustment to physical illness, since
early intervention to prevent depression from taking root in the first place could be
extremely useful with this vulnerable population. In most cases, there are at least some
things that patients can do to help manage their illness or its consequences. Modifying
negative appraisals and attributions about the illness and helping patients to focus on
active coping strategies rather than ruminating about the causes of the illness could be a
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useful strategy for preventing depression and promoting better physical health (Schiaffino & Revenson, 1995).

Anxiety in Medical Populations

Anxiety is another common reaction to situations such as being diagnosed with a serious medical illness wherein weighty things such as one's life are at stake and the outcome is uncertain. In diagnosing anxiety in medical populations, it is important to distinguish anxiety resulting from these stressors from anxiety that may have a physiological basis in the illness itself or in treatment side effects (Wise & Griffies, 1995: Wise & Rieck, 1993).

Medical patients may be particularly prone to anxiety at certain times, such as early in the illness when their diagnosis or prognosis is most uncertain (Corney et al., 1992). It has been proposed that acute anxiety is a normal phase of the coping process rather than something that is likely to cause significant ongoing problems (Falek & Britton, 1974). In addition to situational factors, the amount of anxiety experienced may be influenced by factors such as age, with elderly patients experiencing less anxiety than young or middle aged adults (Westbrook & Viney, 1983).

Challenges Presented by Physical Illness

The experience of physical illness can create a diverse range of life challenges for the affected individual, threatening the patient’s sense of integrity, continuity, and
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normalcy in a variety of ways. The challenges of physical illnesses may include the direct effects of the disease, the disruption to one's life that occurs as a result, the encounters with health care providers and procedures that are necessitated, and the need to come to terms with the personal meaning of the experience and possible changes in self-perception (Woods & Lewis, 1995). Behavioral and emotional challenges faced by individuals with serious physical illnesses may include enhancing the likelihood of recovery, adjusting to or tolerating any negative outcomes, and maintaining a positive self-image, emotional equilibrium, and positive relationships with others (Folkman, 1984).

While some degree of distress is to be expected in patients diagnosed with major physical illnesses, certain individuals are more at risk for developing more significant adjustment problems. While objective characteristics of the illness can set some of the parameters for adjustment, subjective perceptions of physical health status also exert a significant effect on psychological well-being; above and beyond physician ratings of health status. A number of psychological factors, including perceptions, cognitions, and personality attributes, as well as environmental factors such as the availability of social support can influence adjustment to serious illnesses such as cancer. Some of these risk and protective factors will be discussed next.

Overview of Psychological Responses to Stress

A person's adjustment following a stressful life event depends on the interaction
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of a number of ingredients. These include the nature of the event itself, the individual’s cognitive appraisal of the event, coping style, and the other personal and environmental resources and vulnerabilities the person brings into the situation. A similar situation can clearly be more distressing for one person than another (Carver et al., 1993). According to Lazarus and Folkman’s (1984) model of stress and coping, the amount of stress that a person actually experiences following a stressor is mediated by his or her appraisal of the event, which subsequently affects coping responses. Particular coping strategies are evaluated according to whether or not they effectively meet the demands of a given situation, and are not considered inherently healthy or unhealthy. Illness attributions, social support, and other life events also affect this process, and will be described in the following sections.

Appraisal

Appraisal is the process of evaluating a situation to determine whether it is relevant to one’s well being, and if it is, what specifically might be at stake (Folkman et al., 1986). The process consists of primary and secondary appraisal. In primary appraisal, the individual evaluates the type and extent of the potential risks and benefits involved in the situation in question. Stressful situations are typically classified by individuals as entailing harm, loss, threat, challenge, or frequently, a combination of these. If the situation is appraised as relevant to one’s well-being in some way and requiring some type of response, the person then engages in secondary appraisal.
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Secondary appraisal involves evaluating options for handling a situation. The more ambiguity there is in a situation, the more personal factors, such as individual differences in general locus of control, will influence appraisals (Folkman, 1984; Hilton, 1989). Traits do not play as big a role in appraisal when there are clear situational cues as to which type of coping is most appropriate. Secondary appraisal involves considering one's self-efficacy in the specific type of situation, making a judgment about whether the stressor is changeable or controllable, and taking a survey of the psychological, social, and material resources one has that might be applicable to meeting the demands of the situation (Folkman, 1984; Regan et al., 1988). In other words, secondary appraisal enables the person to make decisions relevant to choosing appropriate coping strategies and choosing the best course of action. The person may decide that immediate action is not advisable, and that he or she needs to hold back from engaging in a normally preferred course of action, or needs to seek more information before acting (Folkman et al., 1986).

While appraisal influences the choice of coping strategies, the success of the coping efforts can also lead to reappraisal, thus reducing stress by altering the appraisal of how threatening the event is (Friedman et al., 1989). The effect of appraisal on ultimate outcome of a stressful situation is typically indirect, mediated by the influence appraisal has on the choice of coping strategies. However, in some cases, appraisals can be related to outcomes directly. Those situations that are appraised as involving threats to self-esteem or specific personal vulnerabilities may be more difficult to resolve successfully.
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requiring more effective use of resources and coping strategies (Folkman et al., 1986).
The particular values or commitments a person has affect appraisals: one will not
perceive as much potential harm in a situation where something relatively unimportant to
the person is threatened (Folkman, 1984).

A number of studies have examined how appraisals influence reactions to serious
physical illnesses. Appraisals affect how stressful the illness seems, as well as having an
impact on the meaning the individual gives to the situation (Malcarne et al., 1995).
Greater initial appraisals of threat in illness have been associated with increased
rumination 18 months later (Schiavino & Revenson, 1995). Individuals who perceive
their illness as posing a greater threat may be likely to lack confidence, experience less
initial success at coping with their illness, and thus continue to experience the illness as
overwhelming. Negative appraisals made early in the illness may persist and cause
difficulties with resolving the attendant emotional issues, even after the person has
physically recovered from the illness (Schiavino & Revenson, 1995).

Appraisals of Controllability

The process of appraising changeability and controllability deserves some special
attention. These categories of secondary appraisal can significantly affect the individual's
perceived coping options. Especially with regards to cancer, given the currently
incomplete state of medical knowledge regarding its causes and curative factors, there is a
good deal of room for individual differences to influence this process. Either a perceived
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lack of control or a perceived high degree of personal control could conceivably be interpreted as valid since the modern medical establishment simply does not know the true nature or extent of the influence of the mind-body connection.

In addition to attributes of the stressor itself, appraisals of the potential for personal control are related to one's locus of control, the resources or skills one has that are relevant to the particular situation, and attributions about the cause of the problem, which will be discussed in more detail later. When people believe there is something they can do to change or control the situation, this is typically associated with a better outcome. Beliefs in control may be particularly important in situations where many commitments, things in which the person is highly invested that underlie choices and values, are threatened or when the threat is greater; in other words, when the stakes are high (Hilton, 1989).

However, the purported benefits of perceived control are complicated by several issues. Different facets of a situation may be perceived as more changeable than others. Additionally, there cannot be too great of a mismatch between appraisals of controllability and the actual objective characteristics of the situation. Otherwise, adjustment will ultimately be compromised (Folkman, 1984). When a belief in control is not reality based, perceptions of greater control or responsibility for outcome can cause greater distress. For example, it can be maladaptive to maintain a belief in personal control over a chronic illness when realistically one does not have this control. More severely ill patients may be particularly vulnerable to distress and inappropriate self-
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blame when they accept unwarranted personal responsibility for their condition. In this case it is probably more adaptive to believe in vicarious control, by sharing in the control one's doctor is believed to have. or secondary control, which refers to the process of adapting to the realities of one's situation in a positive way, as opposed to attempting to change those realities (Affleck et al., 1987). Coping the day before surgery is good example: this is probably a time when it is best to focus on managing emotional reactions rather than on attempting to involve oneself in any kind of active problem-solving. In one study of cardiac patients, Crumlish (1994) found that patients were more likely to engage in such strategies as wishful thinking, seeking social support, and also self-blame the day before surgery than they were to engage in these strategies a few days after surgery.

Having control may also be more stressful when it entails choosing between several less than ideal options. for example, surgery and chemotherapy for cancer, since the person will then have to accept some degree of responsibility for any foreseeable undesirable consequences that result. Exercising a high degree of control may also be at variance with the person's usual preferences, if the person has some avoidant or dependent characteristics (Folkman, 1984). When a person does not want control, increasing control, responsibility, or participation can be highly stressful.

Beliefs about what caused a disease and how much personal control one has over its outcome can play an important role in determining one's choice of coping strategies. Blaming oneself for an illness implies some degree of personal control, which may stave off feelings of helplessness and hopelessness (Dalal & Singh, 1992), although the
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potential costs of self-blame have also been noted. On the other hand, maintaining a strong belief in personal control in a situation that is not controllable can lead to feelings of great frustration or learned helplessness and is clearly not adaptive (Lowery et al., 1993). Women who do feel they have control over the course of their illness typically state that they can exercise this control through changes in their attitude, lifestyle changes, or cooperation with their medical treatment (Taylor, Lichtman, & Wood, 1984).

This section has described the process of primary and secondary appraisal, with particular attention paid to appraisals of degree of personal control, and illustrated the importance that appraisals have in influencing the selection of coping strategies.

Coping

Coping is defined as the ongoing process of attempting to manage the internal and external demands of a situation through cognitive, affective, and behavioral efforts (Folkman et al., 1986). Coping efforts are required when these demands are appraised as taxing or exceeding the person's resources. As noted, while appraisal typically affects initial choice of coping efforts, the success of those efforts can subsequently affect reappraisal and the ongoing coping efforts that follow.

Two general categories of coping include emotion-focused, which involves a variety of strategies intended to regulate a person's emotional reaction to the stressful situation, and problem-focused, which involves attempting to change the situation (Folkman et al., 1986). Within these general categories, there are many potential coping
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options available, including planful problem-solving, confrontation, distancing, self-control, seeking social support, accepting responsibility, escape-avoidance, and positive reappraisal (Folkman et al., 1986). In the majority of situations, both general types of coping are required, since emotion-focused coping may facilitate more effective efforts at problem-focused coping, and reduce distress during the time it takes for the situation to be resolved.

However, these types of coping are not necessarily used jointly, and people may rely more exclusively on one type or the other in a given situation, depending on how the situation is appraised. For example, individuals tend to engage in more emotion-focused coping when they perceive their situation as unchangeable (DeGenova et al., 1994). Perhaps because emotion-focused coping is thus associated with more of a sense of helplessness, it is related to increased depression, whereas the use of more problem-focused strategies is associated with more positive affect (Schiaffino & Revenson, 1995).

Coping is by definition a contextual process, so it is more appropriate to evaluate coping strategies in terms of whether they are effective for meeting the demands of a given situation, rather than judging them as inherently adaptive or maladaptive (DeGenova et al., 1994). For example, avoidance may be more adaptive during particular phases of an illness such as immediately preceding or following surgery, but information seeking and active coping may be more beneficial in promoting adjustment in the long run (Friedman et al., 1991). However, avoiding thinking about an illness is a more realistic option for someone who is asymptomatic than for someone who needs to
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accommodate to chronic pain (Mendelsohn, 1991). While active coping strategies may be adaptive at certain times in the trajectory of an illness, such as during rehabilitation, where active behavioral engagement is required, they may lead to adjustment problems during other phases of the illness where letting others take control is more appropriate. In cases where one type of coping is clearly more adaptive, it is best to stick with it: being flexible and switching between multiple coping strategies is not particularly beneficial in this situation (Heszen-Niejodek, 1994).

The idea of people having stable, trait-like coping styles is controversial, since coping is intrinsically tied to demands of particular situations (Folkman et al., 1986). Situational demands, however, do interact with personal variables to determine the stakes involved in a particular situation, and possible ways to meet the demands it poses. It is more likely that individuals have a repertoire of preferred coping options rather than a set style, and that they cope more easily when they can rely on familiar and comfortable coping strategies. People tend to use the coping strategies that match their personal preferences, unless the situation clearly calls for one type of coping or another (Heszen-Niejodek, 1994). Situations that call for different types of coping than the person is accustomed to may be particularly stressful (Carver, Scheier, & Weintraub, 1989). Personality characteristics and attitudes often do affect the choice of coping strategies. Some strategies, such as positive reappraisal, seem to be associated more strongly with personality variables and thus more stable across situations, while other forms of coping, such as many of the problem-focused kinds (e.g. planning, active problem solving, and so
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(through), seem to be more strongly influenced by the specific situational context (Folkman, Lazarus, Gruen, & DeLongis, 1986).

Choice of coping strategies is also influenced by preference for style of processing information. People have one of two basic attitudes regarding information about stressful events they experience (Heszen-Niejodek, 1994). Monitoring involves seeking out, processing, and applying information, while blunting involves focusing attention away from the stressor and avoiding information about it. Individuals with a high locus of control tend to engage in more information seeking when faced with a physical illness (Folkman, 1984). People have different degrees of flexibility in their use of monitoring and blunting, and there are times when the use of one is more adaptive than the other. In situations where the individual realistically has little control over the situation, blunting may be adaptive to manage the intensity of emotional reactions, whereas in situations where action on the part of the individual is required, having more information available and being willing to evaluate it is typically the better strategy.

With regards to coping with health problems. Folkman et al. (1986) found that individuals faced with a threat to their own physical health coped by seeking social support and escape/avoidance more frequently than they used planful problem solving, self-control, or other coping methods. Individuals facing a threat to their health are prone to seek help, exercise self-restraint or hold back from engaging in certain activities,
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determine what concrete actions they can take and stick with them, and use avoidance, humor, and wishful thinking to control their emotional reactions.

Predicting the Use of Coping Strategies

Some researchers have attempted to delineate the factors that predict the style of coping that individuals will use. In their study of Myocardial Infarction patients, Martin and Lee (1992) examined the relationship between coping and the following variables: life stresses prior to the illness, personality factors, perceptions of the illness, and demographic characteristics. They found that the number of prior stressful events and general level of anxiety were predictive of perceptions of the illness and of coping strategies. Individuals who had experienced more stressful life events within the past year perceived their illness as more of a threat and also engaged in more active problem-solving. Greater perceived family support was associated with less problem-solving coping, and perception of the event as controllable was associated with more self-blame and less denial. Lower SES was strongly associated with more passive forms of coping such as denial, devaluation or playing down the significance of the problem, blaming others, and evasion. In this study, women also engaged in more passive forms of coping than men. Personality factors such as insecurity were likely to influence whether the person appraised the event as a challenge or a threat, and this appraisal influenced coping as well.
Factors Contributing to Adjustment

The type of stressor (loss, threat, or challenge) has a predictable effect on the coping mechanisms used (McCrae, 1984), despite individual differences in preferred coping style. Viewing an event as a challenge tends to evoke a wider variety of more active coping mechanisms than viewing the situation as a loss or a threat.

One personality characteristic especially relevant to coping is optimism (Carver et al., 1993). Patients who are more optimistic tend to experience less emotional distress, possibly because optimism affects the types of coping strategies the individual is likely to employ. More optimistic individuals tend to choose coping strategies involving active problem solving efforts, acceptance, positive reframing, and humor, while pessimistic individuals use more avoidance, denial, and behavioral disengagement (Carver et al., 1993). Active coping and planning are also positively associated with self-esteem, internal locus of control, and hardiness, and inversely associated with trait anxiety (Carver et al., 1989).

Illness Attributions

When individuals are faced with a life changing event such as a physical illness, they seek the meaning that this event has for their life, attempting to understand why it happened to them (Schiaffino & Revenson, 1995). As with any major life stress, some individuals may find their previous assumptions about life shaken, and have the need to develop a new understanding. This search for cause may help individuals to reestablish a sense of predictability or control (Taylor, Lichtman, & Wood, 1984).
Factors Contributing to Adjustment

The Just World hypothesis suggests that individuals are likely to experience significant distress and anxiety if they believe that bad things happen for no reason, and they will therefore seek causal explanations that maintain a belief in the meaningfulness and fairness of negative life events (Schiaffino & Revenson, 1995). However, when bad things happen to good people, as in illness and trauma, the Just World hypothesis can cause some real problems, both in terms of self-perceptions and through the reactions of significant others who may also be searching for causal explanations. Blaming the victim can result.

When individuals are unable to reach a satisfactory resolution to the issue of cause and continue to wonder "why me?", this can lead to a ruminative focus on the negative aspects of the situation, to the exclusion of active, problem-focused coping, and this has been associated with prolonged depression. However, some people do not engage in rumination about the cause of the illness at all, so individual differences may play a role in the search for meaning in illness. Physically ill individuals who remain the most depressed tend to be more depressed initially and to make internal, stable, global attributions about the cause of their illness (Schiaffino & Revenson, 1995). Individuals who attribute their illness to uncontrollable, unchangeable factors may also display more affective and motivational signs of depression (Karanci, 1988). The relationship between negative illness attributions and depression is not a direct one. Rather, it appears to be moderated by hopelessness expectancy. That is, when negative attributions are accompanied by hopelessness, this leads to greater depression (DeVellis & Blalock,
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1992). Attributions are often influenced by explanatory style.

Explanatory style refers to the pattern of explanations that an individual habitually makes for the causes of good and bad events (Schulman, Castellon, & Seligman, 1989). These explanations vary according to whether they are internal or external, that is, attributed to the self or to some outside force, stable or unstable, and global or specific. Individuals who are pessimistic habitually believe that bad events are caused by internal, stable, global factors, and that good events are caused by external, unstable, specific factors. This sort of pessimistic outlook has been associated with suppressed immune functioning, increased incidence of health problems, and higher rates of mortality (Dykema, Bergbower, & Peterson, 1995; Peterson, 1988; Peterson, Seligman, & Vaillant, 1988; Peterson & Seligman, 1987).

People may have different beliefs regarding responsibility for causing an illness and responsibility for curing it. Sense of perceived control is related more to beliefs about recovery than beliefs about cause, since obviously the fact the illness was caused cannot be changed. Attributing illness to factors within one's personal control has been identified as a positive prognostic indicator, while causal attributions to uncontrollable, stable conditions (genetics, for example) decreases hope and predicts poorer adjustment (Karanci, 1988).

Attributions are influenced by cultural beliefs, with some groups more likely to attribute illnesses to particular causes, such as God's will, for example (Dalal & Singh, 1992). Belief that one's recovery depends on unpredictable cosmic factors such as this...
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tends to be associated with poorer adjustment. Blaming others (for example, as in the stress of a divorce) or environmental conditions is also associated with poorer adjustment to illness, since it may serve to alienate one's sources of social support and result in unresolved feelings of bitterness (Dalal & Singh. 1992; Taylor, Lichtman, & Wood. 1984). In general though, there is no consensus on whether specific attributions lead to specific psychological outcomes, or whether it is even adaptive to engage in causal thinking at all, since not everyone does (Lowery et al., 1993). Attributions about cause may not be as important early in the adjustment process, but may become salient later as concerns about recurrence of the illness come to the forefront (Taylor, Lichtman & Wood. 1984).

While it is clear that psychological factors can significantly influence the course of many serious diseases, there is currently a good deal of debate in the professional literature over whether psychological factors can play a role in actually causing physical illnesses of various kinds. For example, some studies point to the open expression of emotion, higher level thinking, and goal striving as elements that reduce the likelihood of physical illness (Emmons. 1992). There is a large literature on the mind-body connection and its role in making people more or less susceptible to physical illness. This will not be reviewed since the focus of this investigation is on adjustment following diagnosis. Once illness has been diagnosed, while identifying psychological problems may lead patients with serious illnesses such as cancer to make some positive life changes, assigning such problems a causal role in their illness may evoke needless feelings of shame and guilt.
Factors Contributing to Adjustment

Social Support

Social support can provide insulation between physical illness and psychological stress (Karanci, 1988). People who have experienced major life stresses are less likely to develop health problems if they have adequate social support, and among individuals who are already ill, social support can promote better psychological adjustment and reduce physical symptoms. Social support can directly promote better health, as well as influencing health status by softening the impact of stress. There are a number of ways this might operate. Support may change the way in which the stressful event is appraised: anticipating help from others may make the event seem less threatening right from the beginning. The resources provided by others may offer a solution to the problem that would not be so easily available otherwise. Support may help to reduce the perceived importance of the problem, strengthen one's ability to cope, provide an opportunity to express oneself or distract oneself from the problem, facilitate health-promoting behaviors, and provide tangible assistance such as food, money, or advice. Thus social support may actually reduce the demands associated with the illness (Woods & Lewis, 1995). In addition to these psychological effects, social support may affect physical health more directly by influencing behaviors that have an effect on health, such as diet, exercise, and substance use, or by having a direct effect on biological mechanisms, perhaps by boosting immune system functioning. (Cohen, 1990).

Seeking out support from others is positively related to psychological adjustment (Ptacek et al., 1994). Isolated individuals lacking social and family support appear to be
Factors Contributing to Adjustment

particularly vulnerable to increased morbidity and mortality (Cohen, 1990; Watson, 1994), as well as to increased incidence of depression accompanying their illness (Williamson & Schulz, 1992). The perceived amount of support from family members may impact women with cancer more significantly than men, although both genders tend to experience a disruption in relationships with friends during this time (Fife, Kennedy, & Robinson, 1994). The perceived availability of social support may in fact be the key element in insulating patients from stress, while social integration is responsible for the main effect social support can have in health promotion. Social integration can be defined as having multiple roles. This may affect stress by providing the individual with a wide variety of sources of information that can influence health and problem-solving behaviors, increasing self-esteem and feelings of personal control, and providing tangible resources when needed. Perceived availability of support probably only acts as a buffer when the types of support available match the needs elicited by the stressor (Cohen, 1990). Nevertheless, people who provide a sounding board to discuss problems or who make one feel better about oneself can be helpful under almost any type of stressful circumstances.

Life Circumstances

The presence of other significant life worries makes a significant contribution to the likelihood of depression among physically ill individuals (Williamson & Schulz, 1992). This applies both to ongoing circumstances, such as lack of financial security, and
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the other acute stressful life events the individual may have experienced recently. People who are already under stress may be less able to handle additional stress, since their normal reserves are depleted. Chronic ongoing stressors tend to have a more deleterious effect on adjustment than episodic, transient stressors (Richters, 1987). Other life circumstances may also influence the way people perceive events such as being diagnosed with cancer. For example, Taylor, Lichtman, & Wood (1984) found that attributing the cause of cancer to a specific life stressor was associated with poorer adjustment, possibly because this attribution stirred up more idiosyncratic personal issues than attributing cancer to more generic factors such as chance would have.

Stress Processes in Cancer

A number of personal and disease-related variables impact how the stress of cancer will actually be experienced by each person. This section will address the effect of the factors previously discussed on cancer patients in particular, and also describe the aspects of cancer and its treatment that can have an impact on psychological adjustment. Different types of illnesses present the individual with unique challenges, and even within a single category such as cancer there can be considerable variation in the nature of the actual stressors a person experiences. For some patients, the characteristics of the illness or treatment itself inherently create more intense or numerous problems, while in other cases, patients with similar physical status may experience differing levels of distress because of their life circumstances or psychological characteristics. For example, an
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individual with limited financial resources and no health insurance may have considerably more attendant worries to deal with and thus find the whole experience of cancer considerably more distressing than someone who is financially secure.

Thus, although disease and treatment variables are important, they only describe the general degree of risk for a population and do not explain individual differences in adjustment. While one might be able to say that, for example, 25% of mastectomy patients become depressed, this in itself does not explain why those specific 25% become depressed and the other 75% do not. To answer this question, one must examine patients' psychosocial characteristics including their appraisals, coping strategies, social support, and prior experience with major life crises, among other factors (Krouse, 1985). All of these things significantly influence the success of the individual's adjustment to this disease.

Cancer patients potentially have to face a variety of challenges, any of which may result in loss of self-esteem or changes in self-image. These include the threat of death, chronic pain and other physical symptoms, disability or reduction of functioning, changes in appearance, stigmatization, alterations in social relations with family and friends, financial difficulties, and a variety of other lifestyle changes (Pruitt, 1992). Cancer can often have a more disruptive impact on daily living than other serious illnesses such as heart disease (Schag & Heinrich, 1986). A common symptom in many cancer patients consists of unrelenting feelings of anxiety regarding the areas of their life perceived to be threatened by the illness. This could be as broad as being worried about survival or be
Factors Contributing to Adjustment

more specific as in worrying about friends withdrawing or losing one's job. Even when patients are physically able, overwhelming feelings of depression or anxiety may lead to their giving up normal activities. This can contribute to making their lives seem very bleak, particularly when they have large amounts of free time that can be given over to rumination and worrying, and can lead to more depression. Making efforts to regain control over their daily life and restore it to as much of a normal routine as possible can help to alleviate these feelings (Watson, 1994).

Emotional distress resulting from cancer diagnosis is often related to particular themes. These may include an initial sense of shock, anger, or, as reported earlier, wondering "why me". Some people may blame themselves for the illness and feel guilt, shame, and feelings of isolation (Lewis, 1989; Watson, 1994). They may feel repulsed by the presence of something "alien" in their bodies and worry that significant others will feel the same way. Sexual dysfunction is common, as are social and occupational problems. Patients often feel uncertainty, confusion, a loss of dignity, and a loss of a sense of control over their lives. Feelings of helplessness can be somewhat alleviated by the belief that the situation is at least under someone else's control if not one's own, typically God or doctors. Cancer, like any life threatening illness, may evoke a review of one's life, of things one still wants to accomplish or experience, and a resurfacing of old regrets (Watson, 1994). Being able to find a sense of meaning in the situation significantly lowers anxiety and strengthens high self-esteem in patients with advanced cancer (Lewis, 1989).
Factors Contributing to Adjustment

Up to 47% of cancer patients may experience adjustment disorders, typically involving depression or anxiety, with more serious psychopathology found in 10-15% (Watson, 1994). The percentage of patients who are notably distressed varies according to the specific type and severity of the cancer and the type of treatment. More specific numbers will be discussed in the sections that address the types of cancer of particular interest in this study.

Adjustment can be measured both in terms of psychological distress and psychological well-being. In addition to measuring symptoms of depression, anxiety, fatigue, and other signs of distress, one can look at quality of life in a number of categories. These may include physical and material well being; social and sexual relationships; recreational, social, community, and civic activities; personal development and fulfillment, and self-perceptions (Bullinger, 1992; Ganz et al., 1992; McCartney & Larson, 1987; Towlson & Rubens, 1992). Adjustment in these areas can of course depend on factors besides the illness: for example, overall quality of life may often be lower for elderly patients in some categories, such as general physical health, financial resources, or activity level (Williamson & Schulz, 1992a). Optimal adjustment may be characterized by qualities such as optimism, social engagement, and a reasonable maintenance of one's normal responsibilities. Poorly adjusted individuals would be more likely to display low self-esteem, lack of initiative, a sense of boredom and meaninglessness, and intrusive negative ideation (Mendelsohn, 1991).
Factors Contributing to Adjustment

Coping styles can play an important role in influencing the course of diseases such as cancer (Wood, 1996). Coping may affect physical health through direct neurochemical effects, behaviorally by influencing the likelihood that the person will engage in harmful or risky activities (e.g. driving recklessly, using alcohol excessively), or influencing health-related behaviors (e.g. diet, exercise) (Folkman, Lazarus, Gruen, & DeLongis, 1986). Among individuals confronting a diagnosis of physical illness, the coping strategies of avoidance and wishful thinking have been associated with greater distress, while acceptance, humor, and positive reframing have been associated lower levels of depression (Carver et al., 1993). Avoidance coping is negatively associated with adjustment for both genders. However, women may have an edge on men in terms of adjusting successfully to cancer, since many women are more practiced at emotion-focused coping strategies, which may be useful in situations where one has relatively little opportunity to exert personal control (Fife, Kennedy, & Robinson, 1994).

Risk and Protective Factors in Cancer Adjustment

Some cancer patients are at greater risk for developing psychological problems than others. Risk factors include previous psychiatric history, previous negative experiences with cancer in the family, a greater number of current life concerns, lack of social support, a pessimistic outlook, and low expectations for the efficacy of treatment (Graydon, 1988; Pruitt et al., 1992; Watson, 1994). The demands on the patient for coping and adjustment are different during different phases of the disease (Fife, Kennedy,
Factors Contributing to Adjustment

& Robinson. 1994), and while a majority of patients may experience some psychological distress during the acute phases of diagnosis and treatment, most of them return to normal functioning once the initial crisis has passed. Nevertheless, a minority does experience ongoing emotional problems. Poor premorbid adjustment, as measured by prospective assessments of symptoms of depression and anxiety, seems to be one of the most significant risk factors for lingering problems following cancer treatment (Glanz & Lerman. 1992: Royak-Schaler. 1992). Particularly when it involves disfiguring surgery or debilitating side effects, the type of treatment can be a significant source of physical and psychological distress (Royak-Schaler, 1992). Persons with fewer social and economic resources may also be more vulnerable to distress (Pruitt et al.. 1992).

Some age group differences have been reported in coping with physical illnesses which are relevant to patients' typical reactions to cancer. These differences may be attributed in part to the fact that people perceive physical illnesses, their own or others'. differently based on the age of the afflicted. Age can influence perceptions of the appropriateness of the illness, severity, curability, and controllability. People of all ages perceive advancing age as being associated with increased vulnerability to illness and less potential for control or cure (Keller et al.. 1989). Accordingly, some studies have suggested that elderly patients with cancer may be particularly vulnerable to clinical levels of depression. Evans, Copeland, and Dewey (1991) found that one third of their elderly cancer patients were depressed, and demonstrated a concurrent increase in mortality rates. The evidence, however, is mixed. Other studies, such as Edlund and
Factors Contributing to Adjustment

Sneed (1989) have found that younger cancer patients experienced the greatest distress. In this study, cancer patients under the age of fifty were found to experience the greatest levels of psychological distress, while those over the age of seventy experienced the least distress. These authors suggest that one reason for this may be that for younger persons cancer presents more of a threat to role functioning and the achievement of future goals. Cancer is also more prevalent among elderly persons, and thus younger patients may experience the disease as more stressful since it doesn't fall within the usually expected timetable for life events. Thus, there are plausible explanations for why cancer may be more distressing to either younger or older patients, and the overall effect of age at diagnosis is unclear.

Cancer is viewed by the general public with a great deal of fear. However, once one becomes a cancer patient, appraisals of the threat presented by the disease tend to become more optimistic. This minimization, or decrease in the appraisal of threat, is associated with better adjustment, since it protects patients from becoming overwhelmed with anxiety and allows them to adapt better to life demands (Orr & Meyer, 1990). This reevaluation could either be reality-based, a result of getting more accurate information about cancer, or a means of self-protection. These researchers also found that minimizing the threat was not associated with noncompliance with medical treatment. They suggest this is paradoxical since effective problem solving depends on realistically assessing the situation. However, this assumes that one actually has some choice over the course of action to take; individuals with limited knowledge of medicine may not feel a sense of
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personal control over going about curing their own illness. Cooperating with one’s doctor is a viable problem solving strategy whether or not one seeks out detailed information and knowledge regarding the severity of one’s condition.

Influence of Cancer Site

Initial reactions to the diagnosis of cancer may be similar regardless of the site and type of the cancer, since common concerns about issues such as survival predominate (Cella et al., 1989; Sneed, Edlund, & Dias, 1992). In one study comparing newly diagnosed women with breast or gynecological cancer to women with cancer at other sites, the women with gender specific cancers perceived their illnesses as less serious and life threatening than women with other types of cancer. As a result, they were significantly less depressed, anxious, and hostile and had better overall psychological well-being than the women with other cancer sites (Sneed, Edlund, & Dias, 1992).

In the long term though, adjustment problems may well differ by the type and location of cancer. More specifically, issues related to body image or loss of reproductive ability may cause notable distress for women with cancer of the sexual or reproductive organs, which are the most common sites of cancer in women (Andersen & Jochimsen, 1985; Sneed, Edlund, & Dias, 1992). Body image includes not only perceptions of one’s physical appearance, but also of one’s health, capabilities, and sexuality (Mock, 1993).

There is a great deal of individual variation in adjustment to cancer that does not necessarily vary systematically according to cancer site. The type of cancer by itself does
Factors Contributing to Adjustment

not predict better adjustment or maladjustment. The sorts of problems commonly experienced by women with particular types of cancer, and the individual differences that appear to attenuate these problems will now be discussed.

Breast Cancer

Psychological adjustment to breast cancer has received a great deal of research attention, and this attention has increased recently (Jacobsen & Butler, 1996; Lowery et al., 1993; Mock, 1993; Glanz & Lerman, 1992; Royak-Schaler, 1992). One of the reasons for this is the prevalence of the disease. It is the most common type of cancer in women, affecting one out of every nine American women. It is the leading cause of death for women over age 50 and the second leading cause of death for women ages 30-50 (Royak-Schaler, 1992). Breast cancer results in more deaths than any other type of cancer except for lung cancer (Glanz & Lerman, 1992). In addition to this serious threat to public health, breast cancer may be particularly dreaded because, in contrast to cancers of the internal organs, it often involves surgery that results in visible disfigurement, a consequence that can be highly traumatic for some women.

Breast cancer patients are vulnerable to distress from a number of sources, including the threat to their life, possible disfigurement, changes in social relations, uncertainty about the future, and facing a number of difficult decisions about treatment and possible changes in lifestyle (Carver et al., 1993). Women with breast cancer are often concerned about the potential course of the disease, the quality of their medical
Factors Contributing to Adjustment

care, and limitations on their physical activities (Zemore et al., 1990). In addition, they
not uncommonly report reduced participation in social activities and other lifestyle
changes such as altering the way they dress following surgery.

While many of the challenges presented by breast cancer are similar to those
presented by other types of life threatening illnesses, it does have some unique aspects.
As noted, treatment for this disease often involves potentially disfiguring surgery that can
present a direct threat to a woman's feelings of attractiveness and femininity, particularly
in a culture that places so much value on a woman's appearance, and considers breasts to
be such an important component of attractiveness (Mendelsohn, 1991). In addition to
disruptions of body image, other common reactions to breast cancer include depression,
anxiety, lowered self-esteem, and marital difficulties (Royak-Schaler, 1992). It also
creates a great deal of stress for the spouses, children, and other family members of the
patient. Husbands and wives are likely to cope differently with this life crisis and each is
affected by how well the other copes (Ptacek, Ptacek, & Dodge, 1994). The longer the
patient and her family have to live with an illness, the more their emotional, social, and
economic resources may be depleted, leaving less available to cope with additional life
stressors that may arise (Woods & Lewis, 1995).

The majority of women diagnosed with breast cancer make a satisfactory
adjustment, defined either as the absence of significant symptoms of depression or
anxiety or in more positive terms of personal development (Royak-Schaler, 1992). Of
course, these effects are independent from medical outcomes, but even patients who do
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die from the disease have the potential for positive psychological adjustment and finding a sense of meaning in their lives (Lewis, 1989). Many patients who survive breast cancer feel that the experience helped them to grow as a person, resulting in greater appreciation for and closer relationships with family, stronger character, renewed faith, and a better outlook on life. Many breast cancer survivors say they are able to take life more easily and enjoy it more, for example by taking more time for leisure activities than they did before (Taylor, Lichtman, & Wood, 1984; Zemore et al., 1990). However, the majority of women do experience some distress during treatment, and clinically significant levels of depression and anxiety may be seen in approximately 25% of these women (Glanz & Lerman, 1992; Jarrett et al., 1992). Some patients also experience notable feelings of anger and hostility, or shame and worthlessness (Taylor, Lichtman, & Wood, 1984).

Breast cancer patients may have a poorer psychological outlook than patients with cancer at other sites, despite having a higher quality of life in other areas such activity level, daily living, health, and support (Parker et al., 1989). This may indicate that women have a negative attitude towards their diagnosis that exceeds the actual negative impact it has on most areas of their lives. However, on average, women with breast cancer do not necessarily experience psychological difficulties that differ in kind or intensity from the problems of women with cancer at other sites (Mendelsohn, 1991). As long as there is no continuing disease or impairment, the acute distress passes. There is perhaps less potential for significant impairment in functioning with the loss of a breast than with the loss of some other organs (Mendelsohn, 1991).

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Factors Contributing to Adjustment

The challenges presented by breast cancer change and evolve over the course of the disease (Glanz & Lerman, 1992). Distress tends to be most intense during certain phases of the illness, including after the diagnosis, immediately after treatment, and at the time of the first recurrence (Friedman et al., 1989). Up to 18% may continue to experience significant distress a year after treatment, with even higher numbers of women (30-39% after one year, 20-25% after 2 years) experiencing persistent distress if they were treated with mastectomy (Glanz & Lerman, 1992).

Several distinct patterns of adaptation to breast cancer have been described by Mendelsohn (1991). Some patients are optimistic, effective at maintaining relatively normal functioning, socially embedded, and likely to emphasize positive aspects of their lives, deliberately pushing negative thoughts aside. This pattern is most common among patients with less severe prognoses. A second group can be described as active, socially engaged, realistic yet hopeful, maintaining self-esteem and efficacy, and feeling they have become better people since the illness. Yet, they also feel ongoing distress, dwell on fears of recurrence and other thoughts of cancer, and are described as self-absorbed. Women in this group were significantly younger than in the other groups, but did not differ in prognosis. A third group experiences ongoing physical pain and fatigue, feels depressed, pessimistic, and apprehensive, feels severely limited in their ability to function, and members of this group are unable to avoid distressing thoughts about their condition. This group had the worst disease prognosis. Nevertheless, women in this group still benefited from social support and did not display serious psychiatric symptomatology.
Factors Contributing to Adjustment

Other studies have associated a helpless attitude with a poorer prognosis and found that women who exert more stringent control over their emotional reactions tended to have a more fatalistic attitude towards cancer (Watson et al., 1991).

Factors that Mediate the Adjustment to Breast Cancer

An understanding of the factors that influence psychological adjustment to breast cancer is important to identifying subgroups of vulnerable or resilient women. Some of the relevant factors include supportive interpersonal relationships, life stage in which the disease occurs, premorbid emotional stability, and the adjuvant treatments that are needed (Royak-Schaler, 1992). Emotional adjustment prior to the illness is one of the strongest predictors of adjustment following the illness. Extreme distress upon diagnosis or pre-existing depression, anxiety, or low self-esteem is associated with poorer adjustment (Glanz & Lerman, 1992). In addition, there are a number of cognitive factors that play a significant role in predicting a woman's adjustment to breast cancer (Glanz & Lerman, 1992). These include attributions about the cause of the illness, appraisal, especially of perceived control over health in general and cancer in particular, and the coping styles and skills used to manage the demands of the situation (Royak-Schaler, 1992). A more thorough discussion of these variables as they relate to breast cancer follows.

Demographic Factors

Sociodemographic factors have not been demonstrated to have a notable effect on
Factors Contributing to Adjustment

adjustment to breast cancer. It is quite likely that this results from the fact that participants in most relevant studies have been very homogenous with respect to demographic variables such as race, SES, and marital status, restricting their range and making it difficult to run appropriate statistical comparisons to clarify the effects of such variables (Glanz & Lerman, 1992). The exception to this is age: a younger age at diagnosis is associated with greater distress in breast cancer patients. This is in contrast to studies of cancer patients in general, where as previously discussed, the effects of age tend to be more mixed.

Treatment and Disease Variables

More advanced disease is associated with greater distress, as are more physically debilitating courses of treatment (Glanz & Lerman, 1992). These of course may be related, with more extensive disease requiring more radical treatment. The type of treatment is actually one of the major factors that influences the degree of distress patients undergo. Approximately 25-30% of mastectomy patients experience significant psychological distress, typically with depressed or anxious mood (Glanz & Lerman, 1992; Royak-Schaler, 1992). Lumpectomy patients have better adjustment, reporting less disruption in feelings of femininity and attractiveness, less self-consciousness, more support from friends, smoother marital relationships, and more willingness to be open about discussing the surgery and their sexual feelings (McCartney & Larson, 1987; Royak-Schaler, 1992). Mastectomy patients experience greater anxiety, sadness, and
Factors Contributing to Adjustment

feelings of loss of control over their lives than lumpectomy patients. Women who undergo any type of breast surgery experience levels of depression greater than the general population, but less radical surgery is associated with higher quality of life. Younger women, and those more concerned about their appearance, are more likely to choose conservative surgeries such as lumpectomy. When patients are allowed to choose their surgical procedure, this gives them a sense of control that can significantly alleviate their anxiety. In these cases, uncertainty about the outcome of the surgery is reduced, at least with regards to what their appearance will be like afterwards, and some of the negative effects on self-esteem and body image often seen after breast cancer surgery are attenuated as well (Leinster et al., 1989). In addition to the impact of surgery, adjuvant treatment such as chemotherapy lengthens the disruptions due to treatment and increases emotional distress.

Coping Strategies

A good deal of research has examined the coping strategies of women with breast cancer. The number, type, and flexibility of coping strategies used can significantly affect the amount of emotional distress experienced by individual women. Different characteristic coping responses that have been identified in the literature include an anxious-depressed style, denial, confrontational coping, and a fatalistic outlook (Royak-Schaler, 1992). Coping strategies used most often by women with breast cancer include cognitive avoidance and positive reappraisal. Coping strategies used only infrequently
Factors Contributing to Adjustment

include wishful thinking, social avoidance, and blaming self or others (Jarrett et al., 1992).

It may be more useful to think of coping in terms of a repertoire rather than a single style, since the types of coping strategies used by an individual vary across situations. Some women use a wide variety of coping strategies, while others may rely on only a few, and there is no clear indication as to which of these promotes better adaptation. Most patients use several coping strategies, which change as the demands of the situation evolve (Watson et al., 1991). Examining phase-specific coping styles might be most informative in identifying patients at risk for more distress (Glanz & Lerman, 1992).

Some beliefs and strategies have been identified which seem to be most appropriate to different phases of the illness. Belief in some control over outcome has been associated with greater use of problem solving, seeking social support, seeking information, and use of self-control (Hilton, 1989; Lowery et al., 1993). This approach may be most adaptive during the treatment planning phase. Seeking more information promotes better problem-solving, and being given a choice in treatment options is associated with a better outcome (Glanz & Lerman, 1992). Avoidance, denial, and distraction are correlated with better adjustment during chemotherapy or in the postsurgical period. Good adjustment in breast cancer has been consistently associated with active coping and the "fighting spirit" mentioned earlier, while an avoidant style of coping is associated with poor adjustment (Friedman et al., 1989; Friedman et al., 1991).
Factors Contributing to Adjustment

Having a "fighting spirit" may serve to help the person focus on more optimistic, action oriented thoughts rather than on distressing thoughts about the illness (Friedman et al., 1991). Distraction through keeping busy or redirecting one's thoughts, talking to others, and telling oneself it could have been worse were common methods of coping (Zemore et al., 1990). Denial may also reduce anxiety, but can lead to a less cooperative attitude towards treatment since the seriousness of the illness is minimized and treatment can be highly aversive (Friedman et al., 1989), requiring great perseverance, follow-through, and motivation. Acceptance appears to play a prominent role in adjustment to breast cancer.

Concentrating on the positive aspects of a situation and paying little attention to the negative aspects has been termed "selective ignoring". This strategy, which subsumes a number of specific coping efforts such as positive reappraisal and cognitive avoidance, has been associated with lower levels of anxiety and depression (Jarrett et al., 1992). This finding has been applied to cancer patients in general and was found to be applicable to the breast cancer patients in this study. It is possible that women who engaged in less typical coping strategies were more likely to experience emotional distress, although this was not directly demonstrated in this study. While a relatively small number of women report use of avoidance and denial, those who do are prone to greater levels of distress (Carver et al., 1993).

Coping strategies are also affected by the degree of uncertainty in the situation and the number or importance of life commitments that the individual has at stake (Hilton, 1989). In this study, the cluster of low commitments, high uncertainty, high recurrence
Factors Contributing to Adjustment

threat, and low sense of control was associated with escape avoidance coping and lack of positive reappraisal or accepting responsibility. High recurrence threat and high sense of control was associated with seeking social support, planful problem solving, escape-avoidance, positive reappraisal, and self-control. Commitment was positively related to a sense of control, less uncertainty, positive reappraisal, planful problem-solving, and negatively related to escape-avoidance and acceptance of responsibility. Uncertainty was related to perception of threat, low sense of control, and the use of high escape avoidance and low positive reappraisal. Threat of recurrence was positively associated with severity of the disease and younger age, and with the coping strategies of self-control, accepting responsibility, escape-avoidance, planful problem-solving, and seeking social support. When uncertainty is high, emotional distancing may be more adaptive than problem-solving, since the course of action is unclear (Hilton, 1989).

To summarize, active coping, distraction, and positive reappraisal are all frequently used by breast cancer patients and have been associated with improved psychological adjustment. Frequent use of avoidance and denial are generally associated with poorer adjustment, although these techniques can be adaptive during particular phases of the illness.

Social Support

Another important variable is the quality of support received from family, friends, physicians, and other patients. Social support can insulate patients from stress by
Factors Contributing to Adjustment

providing both practical assistance and emotional support and affirmation (Glanz & Lerman. 1992). Good social connections may have direct physiological effects or result in more help that enables women to manage their lives better in general. Family cohesiveness and frequency of social contact is a strong predictor of healthy coping responses to mastectomy (Royak-Schaler. 1992). On average, women with breast cancer may be more open about their illness and more expressive about their concerns and needs, less distressed, and less fearful of recurrence than women with other types of cancer (Mendelsohn. 1991).

However, a significant subgroup of these women may not receive the social support they need. Social isolation is associated with a higher rate of mortality, especially for women with hormone-related cancers such as breast cancer (Spiegel. 1992). In addition many healthy adults believe that patients who do not talk about their cancer are better adjusted to it. If women avoid talking to significant others about their feelings about having cancer, this suppression of the expression of distress may increase their physical stress by heightening autonomic arousal. The open expression of distress and negative emotions is a positive prognostic indicator as far as survival is concerned, but more intense expressions of anger can also lead to disruptions in domestic and psychological adjustment (Friedman et al.. 1989).

Personality Factors

There has been a great deal of speculation over the years as to whether women
Factors Contributing to Adjustment

with certain personality profiles were more prone to developing breast cancer. Some studies (Grassi & Cappellari, 1988; Hiller, 1989; Pettingale, Watson, & Greer, 1984) have suggested that repression of emotions, particularly unwillingness to directly express anger, makes women more likely to develop breast cancer. However, few studies have examined these personality characteristics in a prospective way. Bleiker et al. (1995) suggested that self-reports of personality traits may be changed by the experience of having breast cancer, so it would not be safe to assume that the characteristics seen in breast cancer patients were also present to the same degree premorbidly. Through a breast cancer screening program, this study was able to obtain personality measures on women before diagnosis and after treatment of breast cancer, and found that women reported significant reductions in rationality, emotional expression, and emotional control following breast cancer treatment. Nevertheless, whether the tendency for emotional repression is a causal factor or a consequence of breast cancer, its presence has been linked with increased mortality (Jensen, 1987).

Thus, much of the research on personality and breast cancer has focused on the idea of identifying a cancer-prone personality. Less attention has been paid to the role that personality traits have in promoting good psychological adjustment following breast cancer diagnosis. Those traits that have been examined include dispositional optimism (Carver et al., 1993), strong sense of commitment and investment in life activities (Hilton, 1989), and as previously noted, willingness to openly express emotion.
Factors Contributing to Adjustment

**Life Events**

Similar to the effect noted earlier in the general discussion of cancer stress, when the diagnosis of breast cancer follows on the heels of other major life events, the individual's capacity for smooth coping may be overburdened. It may also be conjectured that particular life events that threaten a woman's sense of femininity, attractiveness, or other areas often adversely affected by breast cancer may predispose a woman to react to breast cancer with greater distress. One might well imagine that a woman whose spouse had recently left her for another woman, for example, might be particularly vulnerable to the added stress of breast cancer due to existing issues regarding identity, self-worth, attractiveness, and roles. It has also been suggested that major life events, particularly losses or bereavements, may in themselves be a risk factor for the development of breast cancer (Bremond, Kuhn, & Bahnson, 1986; Cooper & Cooper, 1984; Cooper & Faragher, 1993).

More minor life events can also play a role in adjustment. Breast cancer patients who report greater amounts of daily hassles are more prone to poorer psychological and domestic adjustment. This may be because such events make it more difficult to adjust to a major life stress, or because individuals who have more difficulty adjusting to the major life stress are more sensitive in general to the hassles and stresses of daily life (Friedman et al., 1989).
Factors Contributing to Adjustment

Beliefs in Personal Control

Perceived loss of control and wondering about "why me" are associated with higher levels of psychological distress and poorer overall adjustment (Lowery, Jacobsen, & DuCette, 1993). Thinking about "why me" may be a sign that these patients were spending more time thinking about their cancer than are patients who are not preoccupied with this question. This type of thinking is more prevalent sooner after diagnosis. Feelings of loss of control most typically refers to the patients' bodies or their health, but some patients also report feelings of loss of control over their emotions, activities, and future. Slightly more than half (55%) of the breast cancer patients in this study felt they had little or no control over the course of their illness. Those who felt they had control cited methods such as improving health habits, maintaining a positive attitude, and complying with treatment as methods of exerting this control. Approximately the same number (56%) felt that others, usually their physicians, had at least some control over the illness. The perception that the cancer can be controlled increases hope and decreases anxiety and distress.

Sense of control can be divided into control over the cause of the illness, which is associated with anxious preoccupation, control over the course of the illness, which is associated with a "fighting spirit" and longer survival, and control over other aspects of one's life (Spiegel, 1992). This distinction allows for the patient to feel a sense of responsibility, but without blaming the victim. Belief that cancer is controllable either by oneself or by doctors is associated with better adjustment than the belief that it is
Factors Contributing to Adjustment

uncontrollable or in the hands of fate (Taylor, Lichtman, & Wood, 1984). This study also found that no particular causal attribution was associated with better adjustment.

Realistically, women with breast cancer often do have control over some of the consequences of their illness because they may be asked to choose between treatment options (Leinster et al., 1989). Individuals with other types of cancer may not be afforded the same degree of choice.

Gynecological Cancer

Gynecological cancer is the second most common type of cancer in women, and may involve one of several different sites including the uterus, endometrium, cervix, ovaries, or less commonly the vulva (Andersen & Jochimsen, 1985). Recent medical studies which have screened large numbers of women for these cancers have found prevalence rates between one to three per 1000 women, depending on the specific site (Mele, Pirosu, & Orru, 1997; Gimeno, Jiminez, & Camps, 1993). Related gynecological conditions are even more common: for example, 38 per 1000 women have the "precursors" of cervical cancer, in other words, abnormal cell growth that may or may not develop into cancer (Mele, Pirosu, & Orru, 1997), and benign fibroid tumors of the uterus are found in one woman out of every five.

Despite the large numbers of women affected by gynecological cancer, it has received far less research attention than breast cancer. Studies examining overall quality of life, adjustment, coping, social support, and similar questions in gynecological cancer
Factors Contributing to Adjustment

patients have been relatively infrequent, with a large proportion of studies on this population focusing on sexual functioning (Andersen, 1987; Andersen & Jochimsen, 1985; Burbie & Polinsky, 1992; Corney et al., 1992). One contribution of the present study will be to expand the knowledge base on the psychosocial functioning of these patients beyond this relatively narrow realm.

While many of the psychological issues are similar to breast cancer, gynecological cancer can have even more of a negative impact on sexual functioning, body image, and self-esteem (Andersen & Jochimsen, 1985; Krouse, 1985). This is in spite of the fact that, depending on the particular surgical procedure, outward signs of disfigurement may not be as obvious as is the case with breast cancer. Large numbers of gynecological cancer patients experience permanent changes in sexuality, often as a result of impaired ability for normal functioning. These changes, along with physical disfigurement or loss of childbearing capacity can contribute to perceived loss of identity as a woman (Corney et al., 1992). These cancers can affect one's feelings of femininity and wholeness, and the invasive nature of the surgery coupled with the real or symbolic loss of child bearing capability can give rise to feelings of helplessness, uncertainty, and grief (Krouse, 1985). Disruptions in interpersonal relationships, emotional distress, and fears about future consequences are also not unusual. Depression and anxiety are common reactions following surgery for these conditions, although the period between the initial indication that something is wrong and the completion of treatment is often the most distressing period of the illness, since this is the time of the greatest uncertainty (Corney et al., 1992).
Factors Contributing to Adjustment

Some studies have suggested that gynecological cancer patients take longer to adapt to the illness than breast cancer patients, and may in fact experience greater levels of depression and worsening body image as time goes on (Krouse, 1985). Many of these women do not fully resolve the crisis, but continue to experience social withdrawal and ongoing sexual dissatisfaction after the completion of treatment. The majority continue to be concerned about the possible recurrence of cancer, which in many cases is probably a realistic concern. Younger women are likely to experience a decline in the quality of their marital relationships, although the same is not true for older women (Corney et al., 1992). This study also found that a significant proportion of women experienced a slight or marked decrease in the following aspects of their self-concept: Self-confidence (39%), as a woman (38%), self-esteem (35%), and attractive to men (26%). While 23% of the total sample experienced a reduction in their self perceptions as a child bearer, only one third of the sample was under age 40, so this percentage might in fact represent a majority of those still of child bearing age. A substantial number (40%) of those patients under age 45 were disappointed that they couldn't have more children. In support of these findings, reductions in self-esteem, self-confidence, and perceptions of femininity were also reported in a significant minority of the patients in a study by Roberts et al. (1992).

These problems are not inevitable, as some women cope more effectively than others and do not show disruptions of body image (Mendelsohn, 1991). In particular, the experience tends to be more traumatic for younger women, especially those without partners (Corney et al., 1992; McCartney & Larson, 1987; Roberts et al., 1992).
Factors Contributing to Adjustment

these difficulties, the overall quality of life for gynecological cancer patients generally remains good, and these patients are not necessarily at greater risk for overall greater levels of psychological distress than patients with other types of cancer (Roberts et al., 1992). Encouraging a return to normal activities as soon as possible can improve self-esteem and reduce depression. For some women, the outcome might fall more on the positive side because they feel more physically healthy following treatment and are able to accept any losses as a necessary part of this improved health (Bernhard, 1992).

Sexual Functioning in Gynecological Cancer Patients

Disruption of sexual functioning is one of the most common and well researched concerns of patients with these cancers (Andersen, 1987; Burbie & Polinsky, 1992; Corney et al., 1992; McCartney & Larson, 1987). While all cancers have the potential to affect sexual functioning, gynecological cancers have direct physiological as well as psychological effects, and sexual dysfunction is prevalent, particularly in more disfiguring surgeries (Burbie & Polinsky, 1992; Corney et al., 1992; McCartney & Larson, 1987), and also when patients are treated with radiotherapy (Andersen, 1987). The difficulties may consist of reduction in frequency of intercourse, orgasm disruption, or reduction in sexual arousal due to pain, fatigue, fear of injury, emotional distress, hormonal changes, or physical changes to the genitals (Andersen, 1987). These changes occur despite the fact that the patients' level of desire often does not decrease. Overall, 30% to 90% of these patients have significant sexual problems, depending largely on the site and extent
Factors Contributing to Adjustment

of the disease and the nature of the treatment. More radical surgeries often make normal sexual functioning all but impossible due to disruption of some part of the sexual response cycle.

The resumption of sexual activity is often accompanied by a good deal of anxiety, which can be at least partially alleviated by providing the woman and her partner with accurate information about what changes to anticipate (Bernhard, 1992). Comey et al. (1992) found that patients over age 65 were less likely to resume intercourse than younger women, and while all the women in their study over age 50 reduced their frequency of sexual activity, only 42% of women under age 50 did so. These younger women, however, did often encounter difficulties in resuming their sexual relationship which led to emotional distress and marital problems. Sometimes after an initial increase in activity during recovery, long term changes were negative due to discouragement and frustration over not being able to "fix" some of the sexual difficulties that arose following treatment (Andersen, 1987). The single younger women often did not feel able to take on a new relationship and this was a source of discontent. It can be helpful for the medical staff working with gynecological cancer patients to talk with them about their sexual capabilities and limitations and provide some advice on alternatives to intercourse.

Despite a less active sex life, many women felt the experience had led them to value their marital relationship more and feel closer to their spouse emotionally. Length of marriage was associated with less likelihood of deterioration of the relationship. Thus overall, older women in a lengthy, stable marital relationship tend to fare the best in these
Factors Contributing to Adjustment

situations. Andersen's (1987) findings also concur that age, the presence of a sexual partner, and premorbid sexual functioning are all significant predictors of which women are more likely to experience sexual disruption and resulting distress.

Factors that Mediate the Adjustment to Gynecological Cancer

Less has been written about this than about the same issues with regards to breast cancer. Relevant findings that do not exclusively refer to sexual adjustment will be reviewed below.

Demographic Factors

Women who are older and who have been married for longer periods of time tend to fare better. Little has been reported on the influence of other demographic variables.

Treatment and Disease Variables

Gynecological cancer is a category encompassing disorders of a number of different organs, and may involve surgical procedures ranging from fairly limited in scope to highly invasive and mutilating (Krouse, 1985). Some of the more radical procedures, such as pelvic exenteration, can involve removal of most of the pelvic organs, including the bladder, with the attendant loss of a number of normal bodily functions. Not surprisingly, adjustment is more difficult for women who have a poorer prognosis, or who have to undergo more radical treatment.
Factors Contributing to Adjustment

Coping Strategies

Coping mechanisms commonly used by gynecological cancer patients include avoidance, social support, reliance on faith, information seeking, and maintaining a positive attitude. Krouse (1985) has proposed four stages in the adjustment process to gynecological cancer. The first, recognition/exploration corresponds to the time when the woman first notices symptoms, seeks out medical care, and receives a diagnosis. Reactions of confusion and fear during this time are similar to the reactions of individuals with any type of cancer, but some women may feel overly modest and may be embarrassed to seek out the information they need or discuss their concerns with others. The second stage, crisis/climax is often the most stressful time. This encompasses the course of treatment and typically involves many changes in daily activities and relationships. However, despite the potential difficulties of this time period, this study suggested that some steps towards healthy coping need to take place within the first six weeks or so if there is to be a good quality of long-term adjustment. The third stage, adaptation/maladaptation, is comprised of the first year following diagnosis and treatment. Within this amount of time women tend to either develop successful patterns of adaptation, or else get into longer term maladjustive patterns that make ultimate resolution more difficult. Finally, resolution/disorganization is the stage in which one returns to one's previous level of health, work, and social engagement, or else continues to exhibit some persistent problems.
Factors Contributing to Adjustment

**Social Support**

There has been little research addressing the effects of social support on this specific population. Because of the sexual issues involved, and because a woman's husband is often the most important member of her support network (Smith et al., 1985), when social support has been examined in gynecological cancer patients the focus has often been almost exclusively on the marital relationship (Corney et al., 1992). Krouse (1985) has noted that it is sometimes difficult for gynecological cancer patients to gain social support from friends since they may be embarrassed about discussing the details of their condition with friends. When they are able to do so, however, it can be helpful in particular ways. In their study of gynecological cancer patients, Mishel and Braden (1988) found that one of the functions that social support may serve is reducing sense of uncertainty by providing affirmation and a forum for sharing thoughts and ideas. Smith et al. (1985) also confirmed the advantages of being able to talk with someone about the disease, as well as having others provide forms of social support matched to the individual patient's needs. Support from medical personnel, in the form of being available to provide information, is also quite helpful in reducing the ambiguity of the situation and the attendant anxiety (Mishel & Braden, 1988).

**Life Events**

This area has not been well investigated with reference to gynecological cancer
Factors Contributing to Adjustment

patients. No studies could be found that examined the effect of life events on adjustment to gynecological cancer. The only remotely relevant research found concerned the effect of a variety of life circumstances on women's willingness to be screened for cervical cancer. Increasing cooperation with preventative screening, particularly in low SES and minority populations, is a very important public health issue that has in fact absorbed the majority of the research attention given to cervical cancer by psychologists in the last 20 years (based on personal review of the PsychLit electronic database).

Perceptions of Control and Personality

Perceived lack of control has been noted in patients who have undergone more radical surgical procedures and been unable to adapt successfully to the resulting changes in functioning (Krouse, 1985). Unlike breast cancer patients, gynecological cancer patients may not have as many options to exercise in terms of selecting their preferred course of treatment, and may be forced to undergo highly distressing treatment in order to survive.

The role that emotional and personality factors may play in causing the disease or influencing its course have also not received the same amount of press that repression of anger has in breast cancer patients, and no "gynecological cancer-prone personality" profile has been proposed.
Factors Contributing to Adjustment

Summary

Cancer patients face many potential challenges, depending on the nature of their personal situation, which includes the characteristics of their disease, as well as the internal and external resources they have available. This review of literature has identified these challenges and described the factors that promote better adaptation, focusing on two general types of cancer. While many of the interconnections have been previously described a few variables at a time, no previous study has put all these pieces together to specify the factors that help women to meet the challenges of these two particular types of cancers.

Purpose of the present study

The purpose of this study is to identify the factors that facilitate or impede satisfactory adjustment to the particular challenges presented by breast and gynecological cancer. While all cancer patients share a number of difficulties in common, these gender-specific cancers present a unique threat to the patient's feelings of femininity, positive body image, and sexuality. These concerns are potentially more troublesome to some subgroups of patients than others, perhaps because for some women these particular threats are a more salient part of their illness appraisals. More vulnerable individuals may need to engage in different or more intense coping efforts in order to reach a satisfactory level of adjustment.
Factors Contributing to Adjustment

The specific questions examined in this study include the following:

1. What are the overall group differences between patients with breast, gynecological, or other cancers on measures of adjustment and quality of life in specific domains, on cognitive variables including appraisals, attributions, and coping, and in perceptions of other resources such as social support?

2. What are the differences in cognitive variables, resources, life events, and demographic and illness factors between those patients within the specified groups who evidence good versus poor adjustment in specific domains?

3. Are these correlates of good versus poor adjustment the same or different for the different groups of cancer patients?

4. Within the specified groups, are there any subgroups of patients identifiable on the basis of demographic variables, illness factors, and life events who are more likely to show poorer adjustment? If so, how do those patients within this vulnerable subgroup who are able to adjust well differ from the others on cognitive variables and other resources?

To summarize, this study investigated whether breast and gynecological cancer patients, or subgroups of these patients, are more likely to experience certain psychosocial problems than patients with other cancers, and what factors might be helpful in alleviating or preventing these problems.
Factors Contributing to Adjustment

Method

Subjects

The subjects were 145 women who had experienced a diagnosis of cancer. Forty-nine of the participants had breast cancer (BC). 37 had gynecological cancers (GC). and 59 had cancers of other types (OC). (A complete list is in Table 1). More specifically, the BC group included 31 women with breast cancer alone, 6 with additional lymph node involvement, 11 who had had breast cancer first and then another type of cancer more recently, and one who had had another type of cancer before and breast cancer more recently. All of these women were included in the BC group even if their most recent cancer was of another type. This was based on the supposition that having breast cancer adds additional specific stressors above and beyond those from other types of cancer. However, one other woman who currently had another type of cancer indicated that she had had breast cancer 42 years earlier; since this episode was so remote she was included in the other cancers group rather than breast cancer group.

The GC group included 18 women with ovarian cancer, 5 with cervical, 3 with uterine or fallopian tube, 6 who had had a combination of two or more different gynecological cancers, and 5 who had had gynecological cancer plus cancer affecting a different organ. Again, these women with more than one type of cancer were included in the GC group because of the additional issues raised by having a gender-specific cancer.
Factors Contributing to Adjustment

Table 1

Diagnoses of Entire Sample

<table>
<thead>
<tr>
<th>Diagnostic Group</th>
<th>N</th>
<th>Diagnostic Subgroup</th>
<th>N</th>
<th>Specific Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer</td>
<td>49</td>
<td>Breast Cancer Alone</td>
<td>37</td>
<td>Breast Cancer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Breast Cancer with Lymph Node Involvement</td>
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<tr>
<td></td>
<td></td>
<td>Breast Cancer Plus Another Cancer</td>
<td>12</td>
<td>Breast Cancer first, another type more recently</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Another type first, Breast Cancer more recently</td>
</tr>
<tr>
<td>Gynecological Cancer</td>
<td>37</td>
<td>Gynecological Cancer Alone</td>
<td>26</td>
<td>Ovarian</td>
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<td></td>
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<td></td>
<td></td>
<td>Cervical</td>
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<td></td>
<td>Uterine Fallopian Tube</td>
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<td></td>
<td></td>
<td>Gynecological Cancer with Multiple Occurrences</td>
<td>11</td>
<td>Two or More</td>
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<td></td>
<td></td>
<td>Gynecological Cancer Sites</td>
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<td></td>
<td>Gynecological Cancer and another type</td>
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<td>Other Cancers</td>
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<td>CLL</td>
<td>23</td>
<td>CLL</td>
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<td>Other Leukemias</td>
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<td></td>
<td></td>
<td>Lung</td>
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<td>MM</td>
<td>6</td>
<td>MM</td>
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<td></td>
<td></td>
<td>Cancer of Another Organ</td>
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<td>Kidney</td>
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<td>Esophageal</td>
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<td>Lymphoma</td>
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<td>Sinus</td>
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<tr>
<td></td>
<td></td>
<td>Multiple Cancers of Other Organs</td>
<td>4</td>
<td>Various</td>
</tr>
</tbody>
</table>

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Factors Contributing to Adjustment

The Other cancers group included 20 women with chronic lymphocytic leukemia (CLL) plus 3 with other leukemias, 14 with lung cancer, 6 with multiple myeloma (MM), 5 with kidney cancer, two each with esophageal cancer and lymphoma, and one each with throat, sinus, and thyroid cancers. Four more had had two separate organs affected by cancer.

Altogether 99 subjects (68.3%) had had cancer only once, there were 27 subjects (18.6%), as noted above, who had had two or more different types of cancer, and an additional 19 subjects (13.1%) had the same type of cancer affecting the same part of the body more than once.

Since both short and long term adjustment were of interest in this study, subjects were allowed to participate regardless of the length of time since diagnosis. Length of time elapsed since treatment had been successfully completed was considered to be a more appropriate criterion for potentially excluding some subjects, rather than time since diagnosis. Length of time since diagnosis of the most recent occurrence of cancer ranged from one month to 17 years, with a mean of 33.5 months and a standard deviation of 39.6 months; the median was 18 months. The majority of subjects, 58.6%, had been diagnosed within the past 2 years; length of time since diagnosis for all subjects is presented in Table 2. For reasons that will be discussed below, length of time in remission rather than length of time since diagnosis was used as an inclusion criteria.
### Table 2
Length of Time Since Diagnosis

<table>
<thead>
<tr>
<th>Number of Months</th>
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<th>Cumulative Percent</th>
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<tbody>
<tr>
<td>1-3</td>
<td>13</td>
<td>9.0</td>
</tr>
<tr>
<td>4-6</td>
<td>8</td>
<td>14.5</td>
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<tr>
<td>7-9</td>
<td>18</td>
<td>26.9</td>
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<tr>
<td>10-12</td>
<td>17</td>
<td>38.6</td>
</tr>
<tr>
<td>13-18</td>
<td>17</td>
<td>50.3</td>
</tr>
<tr>
<td>19-24 (Up to 2 years)</td>
<td>12</td>
<td>58.6</td>
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<tr>
<td>25-30</td>
<td>15</td>
<td>69.0</td>
</tr>
<tr>
<td>31-36 (Up to 3 years)</td>
<td>9</td>
<td>75.2</td>
</tr>
<tr>
<td>37-48 (Up to 4 years)</td>
<td>5</td>
<td>78.6</td>
</tr>
<tr>
<td>49-60 (Up to 5 years)</td>
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<tr>
<td>61-84 (5-7 years)</td>
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<td>91.0</td>
</tr>
<tr>
<td>85-120 (7-10 years)</td>
<td>7</td>
<td>95.9</td>
</tr>
<tr>
<td>121-216 (Over 10 years)</td>
<td>6</td>
<td>100</td>
</tr>
</tbody>
</table>
Factors Contributing to Adjustment

Participants included patients at all phases in the disease process, including first occurrence, recurrence of the same or a different type of cancer, patients who had had chronic diseases such as Chronic Lymphocytic Leukemia (CLL) or multiple myeloma (MM) for years, and women who had been successfully treated and were in remission. Approximately half of the subjects were being treated at the time of their participation, and the other half had already completed treatment. (Note that exact percentages are not given: a number of participants indicated that they had completed certain treatments and did not indicate they were anticipating any more treatment, but they also did not consider themselves to be in remission, thus, future treatment could still be a possibility). The length of the course of treatment varied from being completed almost immediately after diagnosis for some women, up to taking several years before remission or no evidence of disease (NED) status was achieved for others. As a result, there were many subjects who had still been active cancer patients fairly recently, even though their diagnosis may have been made considerably earlier.

Inclusion criteria were set based on length of time in remission in order to maximize the number of subjects who could be included in the study, yet also to ensure that the subjects who were included had been through the experience of having cancer reasonably recently. Women who were in remission and had not received any treatment for longer than four years (14 subjects altogether) were excluded from most of the analyses. (While four years was used as the cutoff, actually only three of the subjects included had been in remission for longer than three years. These three subjects had all
Factors Contributing to Adjustment

been in remission approximately 3.5 years.) This left a total of 131 subjects, 39 with BC, 35 with GC, and 57 with OC in the final sample. Those analyses that used the entire 145 subject sample, primarily the analyses of the psychometric properties of the instruments used, are specifically noted.

The subjects came from a wide geographic area, including 11 from Montana, 31 from Minnesota, 86 from a variety of other states, 9 from Canada, and 8 from other countries, including Great Britain, Ireland, Denmark, Australia, New Zealand, and an American living in France. The average age was 52.7 years (SD=10.64), ranging from 26 to 78 years old. The majority of the participants, 61.4%, were married, with an additional 6.2% cohabitating; 15.2% were divorced or separated, 11.7% were single, and 5.5% were widowed.

The subjects constituted predominantly a white, middle to upper class sample. Only four of the 145 subjects were from ethnic backgrounds other than Caucasian. Over half, 56.6%, had college or graduate degrees, and an additional 29.7% had between 1 and 3 years of college coursework, 11.7% had a high school diploma only, and 2.1% had not finished high school. With regard to income, 51% had incomes of $50,000 per year or higher. Almost 49% were employed either in professional specialty occupations or executive and managerial positions. The other half of the subjects represented a variety of occupations. The demographic characteristics of the sample are presented in Table 3.
Factors Contributing to Adjustment

Table 3
Demographic Characteristics of the Entire Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Percent</th>
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</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td>Married</td>
<td>61.4</td>
</tr>
<tr>
<td></td>
<td>Cohabiting</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>Divorced / Separated</td>
<td>15.2</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>5.5</td>
</tr>
<tr>
<td>Education</td>
<td>16+ years</td>
<td>56.6</td>
</tr>
<tr>
<td></td>
<td>13-15 years</td>
<td>29.7</td>
</tr>
<tr>
<td></td>
<td>12 years</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>Less than 12</td>
<td>2.1</td>
</tr>
<tr>
<td>Income Level</td>
<td>0-10,000</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>10,000-20,000</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>20,000-30,000</td>
<td>9.7</td>
</tr>
<tr>
<td></td>
<td>30,000-40,000</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td>40,000-50,000</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>50,000+</td>
<td>51.0</td>
</tr>
<tr>
<td>Occupation</td>
<td>Professional Specialty</td>
<td>39.3</td>
</tr>
<tr>
<td></td>
<td>Executive/Managerial</td>
<td>11.0</td>
</tr>
<tr>
<td></td>
<td>Administrative Support/ Clerical</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td>Service Occupations</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Writer/Artist</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Sales</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Technicians</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Assembly</td>
<td>.7</td>
</tr>
<tr>
<td></td>
<td>Farm Worker</td>
<td>.7</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>.7</td>
</tr>
<tr>
<td>Not Currently Employed:</td>
<td>Retired</td>
<td>15.9</td>
</tr>
<tr>
<td></td>
<td>Homemaker</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td>Disabled</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>Volunteer</td>
<td>.7</td>
</tr>
</tbody>
</table>
Factors Contributing to Adjustment

Procedure

Participants were recruited from a variety of sources between May, 1998 and June, 2000. Initially, 10 participants were recruited in Missoula, Montana through local primary care physicians and support groups at the Western Montana Clinic and St. Patrick’s Hospital Cancer Center, from May through August, 1998. There were ten oncologists practicing in Missoula at that time who were approached in April and May, 1998. Three agreed to assist in this research by handing patients flyers describing the study. The principal investigator also spoke at meetings of two local support groups, the Breast Cancer Resource Network, and the Breast Cancer Support Group, to describe the study and hand out contact information.

After the principal investigator relocated to Minneapolis, Minnesota, approximately 20 participants were recruited from September, 1998 through February, 2000. through posters placed at local medical clinics and public libraries, notices placed in community newspapers, and letters sent to patients in the oncology clinic at the Minneapolis VA Medical Center with the permission of their physician.

The majority of the participants, the remaining 115, were recruited from February to June, 2000 from e-mail discussion groups created by the Association of Cancer Online Resources (ACOR) to provide patients and caregivers with support and information. Most ACOR groups are open to postings by researchers, provided that the message is first approved by the individual list manager. Messages were posted on 12 lists, each representing a different type of cancer. These messages described the study and
Factors Contributing to Adjustment

requesting that interested persons send a private message to the principal investigator to get more information and decide if they would like to participate. These lists included subscribers from all over the United States, Canada, and a number of other countries.

Participants were sent the surveys by mail. Prior to being sent the mailing all subjects communicated with the principal investigator by phone or e-mail. The PI offered to address any questions, and subjects were encouraged to contact the PI again if additional questions arose. Thus, additional contact was at the subject’s request; potential subjects who did not return their materials were not contacted again nor prompted to do so, since this was considered potentially intrusive. Altogether, questionnaires were mailed to 194 people, yielding a total response rate of 75%. Response rate for the ACOR subjects alone was close to 80%.

The vast majority of subjects had a positive or neutral reaction to participating in the study. Only one individual, who elected not to participate in the study, indicated to the PI in a very polite manner that she found the questionnaires distressing. The most common complaints were that specific questions were confusing, did not apply to the subject, or did not provide an answer to choose that really fit. A few people made comments to the effect that the questionnaires did not fully capture their experience and enclosed letters that elaborated on their unique circumstances.
Factors Contributing to Adjustment

Measures

Measures of Adjustment and Quality of Life.


This is a 45 item inventory that measures adjustment in seven different areas of psychosocial functioning. These include health care orientation, psychological distress, social, sexual, and extended family relationships, and vocational and domestic adjustment. This measure has been used with a variety of medical populations, and specific norms are available for patients with cancer. According to the manual, it is appropriate to use $T$-scores based on these norms when evaluating the profile of an individual patient, but when conducting statistical analyses on groups of respondents, raw scores are slightly more precise. Internal consistency of the subscales was established on samples of Lung Cancer, Renal Dialysis, and Cardiac patients. Reliability coefficients for six of the seven subscales for the Lung Cancer sample were between .68 and .93. Internal consistency of the subscale measuring Extended Family Relations was initially only .12 for this sample; this subscale was subsequently revised and internal consistency was reported as .62 in the Cardiac sample (Derogatis & Derogatis, 1990). Convergent validity has been established using the Symptom Checklist-90 Revised and the Affect Balance Scale (Friedman et al., 1992).
Factors Contributing to Adjustment


This is a 22 item questionnaire that taps into quality of life in the domains of physical health, ability to perform daily activities, social functioning, and psychological well being. Concurrent validity and a stable factor structure have been established, and the items are uncontaminated by social desirability (Schipper et al., 1984).

The Center for Epidemiological Studies - Depression (CES-D) Scale from the National Institute of Mental Health (Radloff, 1977).

This scale was chosen as a measure of depression since the literature has suggested that it is less confounded than other widely used depression inventories by the overlap between somatic depressive symptoms and somatic symptoms attributable to illness. This is a 20 item questionnaire that was designed to assess depressive symptoms in the general population. Internal consistency was .80 or higher in all subgroups assessed in the validation study (Radloff, 1977). Concurrent and construct validity were established by correlations with other self-report measures and clinical assessment of depression, and by relationships with other variables associated with depression.

The Body Image Questionnaire

After extensive searching, no existing questionnaire could be found that satisfactorily measured the aspects of body image of interest in this study. Existing
Factors Contributing to Adjustment

questionnaires were focused on weight and satisfaction with different parts of the body and would not have been able to capture illness-linked changes and perceptions of femininity. Therefore, a body image questionnaire was created by the author for the purposes of this study. Psychometric properties of this instrument are reported in the Results section.

Measures of Psychological and Social Resources


This 60 item coping inventory consists of fifteen scales that measure various types of problem focused, emotion focused, and several other presumably less adaptive coping strategies. This measure was chosen because the items were judged to be more appropriate for cancer patients than those on other widely used coping inventories. Alpha reliabilities for the subscales range between .62 and .92, except for the Mental Disengagement subscale which has an alpha coefficient of .45 (Carver, Scheier, & Weintraub, 1989). Two of the subscales, alcohol/drug related disengagement and use of humor, were added more recently and considered experimental, so reliability information has not yet been reported for these subscales. Intercorrelations between the subscales are low, with a few exceptions. Convergent and discriminant validity have been established using measures of optimism, hardiness, self-esteem, and trait anxiety.
Factors Contributing to Adjustment

The Stress Questionnaire of Folkman et al. (1986)

Primary appraisal and secondary appraisal were measured by parts of this questionnaire. The original questionnaire includes thirteen primary appraisal items that ask the subject to rate what is at stake in a stressful situation, and assesses both threats to self-esteem (6 items, $\alpha=.78$), potential harm to a loved one (3 items, $\alpha=.76$), as well as several items that are analyzed individually including not achieving an important job-related goal, harm to own health, safety, or physical well-being, strain on financial resources, and losing respect for someone else. For the purposes of this study, six additional items were added, four to assess threat to body image, perceived attractiveness, and sense of feminine identity; one assessing threat of changes in sex life, and one addressing threat to future childbearing. The respondent was also allowed space to write in an additional response about what they perceived to be at stake in this stressful situation if they felt this was not covered by the standard items.

The measure of secondary appraisal consists of four items asking to what extent the stressful situation was (1) "One that you could change or do something about", (2) "One that you had to accept", (3) "One in which you needed to know more before you could act", and (4) "One in which you had to hold yourself back from doing something you wanted to do". These items are analyzed individually.
Factors Contributing to Adjustment


This is an 18-item scale developed for use with populations with chronic medical conditions, validated on two groups of cancer patients, as well as chronic pain and rheumatoid arthritis patients. It addresses perceived control over course and recovery, rather than cause, of the illness. It assesses the patients' beliefs regarding how much control each of the following has over their health: Internal factors, Chance, Doctors, and Other people. All subscales have alpha reliabilities of .70 or higher, and concurrent validity was established with the previously validated forms A and B of this scale (Wallston, Stein, & Smith, 1994).

The Levels of Attribution and Change scale (LAC) of Norcross et al. (1984).

This instrument was used to assess causal attributions for why the illness occurred. The original measure includes 60 Likert items in nine subscales that ask the subject to rate the degree of contribution of several distinct personal factors, environmental and lifestyle variables, interpersonal conflicts, physical constitution, bad luck, and spiritual determinism to the development of the illness. Internal consistency of the subscales ranges between .83 to .92.

The subscales of maladaptive cognitions (example item "my beliefs in perfectionism") and insufficient effort (example item "my lack of willpower") were omitted because the items were deemed inappropriate or irrelevant for cancer patients.
Factors Contributing to Adjustment

One item ("my physical appearance") was also eliminated from the Biological inadequacies subscale for the same reason.

Twenty additional items, developed for this study, were then included for two purposes. First, items were developed to include some of the more common causal attributions for cancer that were not covered by the original measure, for example, "my genes", "my eating habits", "my smoking cigarettes", and so on. Secondly, some of the added items assessed the beliefs that some people have about the causal role of a "cancer-prone personality", which includes attributes such as not openly expressing anger. All these modifications resulted in a questionnaire with a total of 62 items. Analysis of these extra items is discussed in the Results section.

The Perceived Social Support (Friends and Family) scales of Procidano and Heller (1983).

This measure contains two 20-item scales asking subjects to rate how well they see their needs for support, information, and feedback are being met by their friends and family. Internal consistency was reported as .88 for the Friends scale, and .90 for the Family scale. The scales were validated by examining the relationships of perceived social support scores with assessments of subjects' social networks, social competence, and individual attributes.
Factors Contributing to Adjustment


This is a 47 item scale that asks subjects to indicate the major life events they have experienced within the past year and rate the degree of positive or negative impact these events had. Subjects may also write in events that are not on the list. A supplementary list of 10 events relevant for students is also available, although this was not included in the present study since it was not applicable to the target population. Test-retest reliability coefficients for the entire 57 items were reported to be .56 for the negative change score, .88 for the positive change score, and .64 for the total change score. Subjects check off the events on the list that they have experienced within the past 12 months and rate the degree of impact of each event on a scale from -3 to +3. The scores on items with a negative impact rating are summed to form the negative change score. the scores on items with a positive impact rating are summed to form the positive change score. and the absolute values of these two scores are summed to form the total change score. Thus, scores represent the degree of impact of the events experienced, not the number of events. Events that have a rating of zero, in other words, that the individual judges to have had no emotional impact, are not included in any of the total scores.


This questionnaire contains eight items that are rated on a four point scale; they measure the meaning people create in adapting to cancer. Of particular interest are
Factors Contributing to Adjustment

implications of the illness for personal identity, for expectations of the future, and for possible changes in interpersonal relationships. The alpha reliability coefficient for the scale was .81, and construct validity has been established (Fife, 1995).

Information was also requested from subjects on demographics and illness variables, including site and stage of disease, and type of treatment undergone or anticipated. Since premorbid psychological history is generally considered a very important predictor of adjustment, a very brief screening for prior psychological disorder and treatment was included on the questionnaire covering illness and treatment history. This consisted of asking if subjects, prior to developing cancer, had ever seen anyone for emotional or psychiatric problems, for what length of time, and for what reason.

Results and Discussion

Psychometric Analyses

Body Image Questionnaire

The sixteen item Body Image Questionnaire (BIQ; see Appendix A) was created for this study and included items about perceived femininity, attractiveness, and illness-related changes in perceptions of the body, as well as items about weight and physical fitness in order to attempt to distinguish illness-related body dissatisfaction from weight-related dissatisfaction.
Factors Contributing to Adjustment

A Principal Components Analysis with Varimax rotation was conducted on the BIQ using all 145 subjects. Twelve of the items tapping illness-related aspects of body image loaded on the first factor, which accounted for 34.93% of the variance. The three items relating to physical fitness and weight loaded on a second factor, accounting for 11.96% of the variance. While satisfaction with weight was not specifically of interest in this study, including these items ensured that the concept of body image being measured by the other items was indeed distinct from satisfaction with weight. The final item did not load on either factor and was discarded. The measure of body image used as a dependent variable in this study thus consisted of a sum of the 12 unweighted raw items on the first factor, which had good internal consistency (alpha = .88).

Causal Attributions

Twenty extra items were added to the Levels of Attribution and Change scale (LAC) in addition to the standard subscales, to include items referring to causative factors more specifically associated with cancer. See Appendix B for the LAC items. Principal Components Analyses were conducted on these extra items both separately and along with all of the items from the LAC. These analyses included all 145 subjects.

When the twenty added items were entered into a Principal Components Analysis with an unrestricted number of components, thirteen items loaded on the first component, which accounted for 35% of the variance in the items. This component included all the items having to do with repression of emotions and personality characteristics as
Factors Contributing to Adjustment
causative factors, as well as some items regarding taking proper care of the body through
diet and exercise. The common element in these items appeared to be Self-blame, and
the internal consistency of the scale was .91. The second component, accounting for
11.85% of the items' variance, included three items regarding family history and genes.
plus an item about smoking cigarettes. These four items had internal consistency of .75;
the three genetics items alone, without the cigarette item, had internal consistency of .84.
The third component, a singleton accounting for 6.15% of the variance, included only one
item about drinking alcohol. Only six people out of the entire sample agreed or strongly
agreed that drinking too much was partially to blame for causing their cancer. This may
have been because most subjects in this sample were not heavy drinkers, or because
alcohol and cancer are not widely perceived to be related. The final component.
accounting for 5.74% of the variance, included two items regarding being made
vulnerable by an earlier illness or injury and exposure to toxins, and thus referred to some
Outside factor.

When the number of components was restricted to three, the alcohol item and the
Outside factor items loaded with the Self-blame component. Component two, genetics
plus cigarettes, remained intact. Percent of variance accounted for did not change for
either component. These components appear to supply a reasonable representation of the
underlying structure of these items.

A second Principal Components Analysis was then conducted on the entire LAC,
including both the original and the new items, in order to determine if the added items
Factors Contributing to Adjustment

might better be combined with existing subscales. This was tried first with an unlimited number of components permitted. Despite being previously established by the authors of the instrument as representing distinct subscales, in this sample all of the items from the Interpersonal conflicts, Unpleasant environment, Intrapersonal conflicts, chosen Lifestyle, and Biological inadequacies subscales, as well as all the items from the newly added Self-blame component and the alcohol item, all loaded on one component. This component was named Personal responsibility, since the common theme among these causal attributions appears to be different varieties of personal problems and shortcomings. Personal responsibility accounted for 31% of the variance and had very high internal consistency, \( \text{alpha} = .96 \).

Besides Personal responsibility, three other distinct components emerged. The Spiritual determinism items accounted for 8.5% of the variance and had internal consistency of .96. Bad Luck accounted for 7.19% of the variance and had internal consistency of .91. The three items about genetic causes accounted for 3.58% of the variance and had internal consistency of .84.

Three individual items that had been added to this instrument did not load with any other items, and appeared alone on additional singleton components. These items were "an earlier injury or illness that made me vulnerable", "exposure to pesticides or other toxins", and "smoking cigarettes". In order to attempt to include these items in the analysis, since they were among some of the more commonly and strongly endorsed items, an additional PCA was conducted on all the LAC items, restricting the number of
Factors Contributing to Adjustment

components to four. This analysis resulted in all of the items loading on three components. All items except the ones pertaining to Spiritual determinism, Luck, and Genetics loaded on component one, and accounted for 31.01% of the variance. This component included all of the items from the Personal responsibility component described above, plus the singleton items. Factor scores on this slightly more inclusive component were used in this research; the name "Personal responsibility" was retained to describe it. The Spiritual items loaded on component two, and accounted for 8.50% of the variance. The Luck items had positive loadings on component three, and the Genetics items had negative loadings on this same component, accounting for 7.19% of the variance. Individuals who believed their illness could be attributed to genetic causes were less likely to endorse bad Luck as a cause, and vice versa. This component was named "Luck or genes".

Reliability coefficients were calculated for the established subscales of the LAC, which in this sample all loaded together on the Personal responsibility component. These include Interpersonal conflicts (alpha=.93), Unpleasant environment (alpha=.73), Intrapersonal conflicts (alpha=.84), chosen Lifestyle (alpha=.84), and Biological inadequacies (alpha=.75). Since these subscales all had good internal consistency and have been previously established as distinct, they were used separately in one set of analyses to determine if they did represent constructs that had different effects on outcome for this sample.
Factors Contributing to Adjustment

Another set of analyses looked at the effects of the four causal attributions that the Principal Components Analyses reported above suggested were separate constructs: Personal responsibility, God, Luck, and Genetics. Luck and Genetics were treated as separate subscales despite loading on the same component in one of the analyses reported above. Since the loadings were in opposite directions, an elevated score on a subscale including both the Luck and Genetics items would indicate that the individual most likely attributed the cause of illness to either Luck or Genetics. One would not be able to determine which, and this would make such a combined subscale uninterpretable.

Primary Appraisal

The final questionnaire that had items added was the appraisal questionnaire of Folkman et al. (1986). See Appendix C for these items. A Principal Components Analysis was conducted on the entire instrument using all 145 subjects. In this analysis the items having to do with threats to Femininity loaded on the same factor with threats to Self-esteem, the established subscale. However, the threat to Femininity items were kept as a separate, rationally derived scale. While many of the women with non gender-specific cancers disagreed with all these items since there seemed to be no compelling reason for either their sense of femininity or their self-respect to be threatened by their illness, it was judged that these two facets of self-concept may be more distinctly endorsed by the women with breast or gynecological cancers.
Factors Contributing to Adjustment

The four items related to perception of threats to Femininity correlated highly with each other and were combined into one subscale. The internal consistency of these four items in the new threat to Femininity scale was .90. The additional two items, changes to Sex life and threat to Fertility were analyzed as separate items, despite being significantly correlated with the Femininity items, so that these threats could be examined specifically. The threats measured by single items in the original instrument and the established subscale harm to Loved one all emerged as distinct components in the present sample as well.

Reliability Analyses

A measure of emotional distress was constructed by combining the CES-D total score with the PAIS-SR Psychological Distress subscale and the FLIC Psychological Well-being subscale, first converting these scores to z-scores, summing them, and then taking the average. These three scales correlated highly with each other (range from .81 to .70). and the internal consistency of the new combined distress scale was very high (alpha = .97).

The raw scores on the seven subscales from the PAIS-SR were summed to obtain a total score. This total score had acceptable internal consistency (alpha = .77), although the correlations of the subscales with each other only ranged from the .10s to .40s. Correlations of each of the subscales with the total score ranged from .47 (for Extended Family) to .78 (for Domestic Environment). This suggests that while good adjustment in
Factors Contributing to Adjustment

one area of a person's life generally tended to go along with good adjustment in other areas. the constructs being measured by these subscales were also somewhat distinct. Since some of these subscales represented specific areas of adjustment that were of interest in this study, both the total score and the individual subscale scores were examined as outcome measures. The total score was computed by summing the raw scores from the individual subscales. Alternatively, the total score was also computed using z-score equivalents of the subscale scores rather than the raw scores. The total scores derived from these two methods were nearly identical, they correlated with each other at .997, so the sum of raw scores was used in the analyses.

A number of other ways of combining subscales from the PAIS-SR and FLIC were examined (after first converting each scale to z-scores), based on the content area they covered. Most of these combinations had unacceptable internal consistency. The following are the ones that reached or approached acceptable levels of internal consistency.

When three FLIC subscales were combined that related to condition of physical health (the 9-item Physical Well-being, the 3-item Hardship, and the 2-item Nausea scales), the resulting $\alpha = .70$. When the Nausea scale was removed and only the Physical Well-being and Hardship scales were combined, $\alpha = .78$. Although this internal consistency is acceptable, since these scales do cover somewhat different content areas, it was thought to be more useful to examine them separately.
Factors Contributing to Adjustment

When the three PAIS-SR subscales having to do with interpersonal relationships, mainly with family members (Domestic Environment, Extended Family, and Social Environment), were combined, the resulting alpha = .62. The items on these subscales clearly cover different, though potentially related, content areas, and internal consistency is not as high as desirable. Since two of these three scales are combined and considered as part of the PAIS-SR total score, this subset combination was not used.

Group differences

Data Analysis

Differences between diagnostic groups on the measures used in this study were tested using ANOVAs for the demographic variables, the illness and treatment variables, and the questionnaires that produced a single score. Differences on questionnaires containing multiple subscales were tested using MANOVAs. Since this study is an exploratory one, the results of the individual univariate ANOVAs were examined even in cases where the overall MANOVAs were not significant. Post hoc tests were conducted using the Tukey HSD procedure.

It should be noted that because of the number of analyses conducted in this study, there is an increased probability that some of the significant results occurred by chance (Type I error). This is less of a concern for the more robust findings in this study where the probability of a significant finding occurring by chance was smaller (for example, p<.001, less than one chance in one thousand) than for those where the probability was...
Factors Contributing to Adjustment

greater (for example, \( p = .05 \), one chance in twenty). Such findings should be interpreted with more caution, especially in cases where they have not yet been replicated in other studies.

In some analyses there is also a heightened probability that there was not enough power to detect significant differences that may in fact exist between groups (Type II error). This is particularly a concern for the analyses comparing differences between the diagnostic subgroups. These groups had unequal numbers of subjects, several of the groups were quite small, and in many cases the variances were heterogeneous. Because of this, some of the assumptions for analysis of variance were not met, and this reduced the sensitivity of these analyses. There may be additional group differences that would emerge in replications involving larger and better matched groups of subjects. In spite of these issues, the analyses of subgroups in this study were undertaken for exploratory purposes. It was thought that this might yield potentially useful findings, that could provide ideas for future research, beyond what could be gained by examining only the larger groups.

Demographic Information

There were no significant differences between the BC, GC, and OC groups on marital status, length of marriage, education or income level. See Table 4 for a summary of the demographic variables. There was a significant age difference (\( F[2,128] = 6.645, \).
Factors Contributing to Adjustment

### Table 4
**Group Differences**
Demographic Information and Illness Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Total Sample n=131</th>
<th>BC n=39</th>
<th>GC n=35</th>
<th>OC n=57</th>
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<td></td>
<td>Mean</td>
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<td>Mean</td>
<td>SD</td>
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<td><strong>Age</strong></td>
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<td><strong>Length of Marriage</strong></td>
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<td>15.96</td>
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<td><strong>Number of Children</strong></td>
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<td>1.59</td>
<td>.75</td>
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<td>.75</td>
<td>1.87</td>
<td>.73</td>
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<td><strong>Stage of Illness</strong></td>
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<td>1.27</td>
<td>1.97</td>
<td>1.17</td>
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<td><strong>Number of Occurrences</strong></td>
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<td>.51</td>
<td>1.33</td>
<td>.48</td>
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<tr>
<td><strong>Perception of Prognosis</strong></td>
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<td>1.35</td>
<td>2.34</td>
<td>1.46</td>
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<tr>
<td><strong>Months Since Diagnosis</strong></td>
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<td>34.30</td>
<td>19.79</td>
<td>12.33</td>
</tr>
<tr>
<td><strong>Months in Remission</strong></td>
<td>6.85</td>
<td>10.95</td>
<td>9.90</td>
<td>11.65</td>
</tr>
</tbody>
</table>

Prior Mental Health History: 1=None, 2=Mild, 3=Moderate to Severe
Insurance Coverage: Rated on a scale from 1 to 4, with 1 being the best and 4 the worst.
Perception of Prognosis: 1 is the best, 5 is the worst.
Factors Contributing to Adjustment

Post hoc comparisons indicated that the GC patients (Mean=46.97, SD=10.58) were significantly younger on average than either the BC (Mean=54.97, SD=10.07) or OC patients (Mean=53.51, SD=9.81). There were also significant differences in number of children (F[2,127] = 3.453, p=.035) and age of the youngest child in the family (F[2,127] = 4.833, p=.009), both of which may be relevant to future child bearing plans. The Post hoc comparisons indicated that the GC patients had significantly fewer children (Mean=1.31, SD=1.28) than the BC patients (Mean=2.15, SD=1.76), with the OC group having an intermediate number (Mean=1.75, SD=1.10). The women with GC had on average a youngest child who was 12 years old (SD=13.48), significantly different from the much older children in the BC group (Mean=20, SD=13.97) and the OC group (Mean=21, SD=14.41). These differences are likely to reflect both the younger age of the GC patients and the impact of GC on fertility.

Characteristics of Illness

There were no significant differences between the BC, GC, and OC groups on the average length of time that they had been in remission, stage of the illness, their perception of their own prognosis, or their report of the adequacy of their health insurance coverage. There was a significant difference between the groups in the length of time since initial diagnosis (F[2,128] = 5.776, p=.004). As a result of the inclusion of a large number of individuals with Chronic Lymphocytic Leukemia (CLL) in the OC group, their mean number of months since diagnosis was 38.42 (SD=47.14), significantly longer than...
Factors Contributing to Adjustment

either the BC (Mean=19.79 months, SD=12.33) or GC (Mean=17.43 months, SD=17.16) groups. See Table 5 for the means and SDs of these characteristics of illness discussed above. See Table 6 for the percentages of subjects receiving different types of treatments, discussed below.

There were also significant differences in how many members of these different groups had received radiotherapy (Chi-square [2] = 12.62, p=.002) and how many had been through surgery (Chi-Square [2] = 49.39, p<.001). Individuals with CLL had typically not been treated with surgery, reducing the mean prevalence of surgery in the OC group as a whole. The vast majority of individuals with BC, GC, and cancer involving other specific organs had been through a surgical procedure. There were no significant differences between how many subjects in the different groups had received chemotherapy or had tried alternative treatments and supplements to treatment such as changes in diet or using visualization.

In order to determine if there were additional differences in illness profiles based on subgroups within the BC, GC, and OC groups, the sample was subdivided into nine groups. The BC group was divided into BC alone and BC plus cancer involving an additional affected organ. The GC group was divided into GC alone and GC with multiple occurrences, which could either be having cancer of a different organ or having multiple GCs affecting different parts of the reproductive system. The OC group represented a more diverse range of diagnoses, and it was divided into five groups in order to represent as well as possible the diagnostic subgroups that might have distinctive
Factors Contributing to Adjustment

### Table 5
**Group Differences in Illness Variables**

<table>
<thead>
<tr>
<th></th>
<th>Breast Cancer n=39</th>
<th>Gynecological Cancers n=35</th>
<th>Total Other Cancers n=57</th>
<th>CLL/MM Only n=29</th>
<th>All Other Cancers Except CLL/MM n=28</th>
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</thead>
<tbody>
<tr>
<td>Months Since Diagnosis</td>
<td>Mean 19.79</td>
<td>SD 12.33</td>
<td>Mean 17.43</td>
<td>Mean 38.42</td>
<td>Mean 58.65</td>
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<tr>
<td></td>
<td>SD 17.16</td>
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<td>SD 17.16</td>
<td>SD 47.14</td>
<td>SD 10.89</td>
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<tr>
<td>Months in Remission</td>
<td>Mean 9.90</td>
<td>SD 11.65</td>
<td>Mean 6.36</td>
<td>Mean 5.47</td>
<td>Mean 6.00</td>
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<td></td>
<td>SD 10.67</td>
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<td>SD 10.59</td>
<td>SD 10.59</td>
<td>SD 12.05</td>
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<td>Mean 1.33</td>
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<tr>
<td></td>
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<td>SD 1.49</td>
<td>SD 1.43</td>
</tr>
<tr>
<td>Perception of Prognosis</td>
<td>Mean 2.34</td>
<td>SD 1.46</td>
<td>Mean 2.71</td>
<td>Mean 2.98</td>
<td>Mean 3.19</td>
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<td></td>
<td>SD 1.45</td>
<td></td>
<td>SD 1.45</td>
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<td>Adequacy of Health Insurance</td>
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<td>SD .78</td>
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</tbody>
</table>

Prior Mental Health History: 1=None, 2=Mild, 3=Moderate to Severe
Insurance Coverage: Rated on a scale from 1 to 4, with 1 being the best and 4 the worst.
Perception of Prognosis: 1 is the best, 5 is the worst
Factors Contributing to Adjustment

Table 6
Percentages of Subjects Having Different Types of Treatment

<table>
<thead>
<tr>
<th></th>
<th>Breast Cancer n=39</th>
<th>Gynecological Cancers n=35</th>
<th>Total Other Cancers n=57</th>
<th>CLL/MM Only n=29</th>
<th>All Other Cancers Except CLL/MM n=28</th>
<th>Entire Sample n=131</th>
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<tbody>
<tr>
<td></td>
<td>Percent</td>
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<td>Percent</td>
<td>Percent</td>
<td>Percent</td>
<td>Percent</td>
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<tr>
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<tr>
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<td>82.8</td>
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<tr>
<td>Past Less Invasive</td>
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<td>13.8</td>
<td>32.1</td>
<td>29.0</td>
</tr>
<tr>
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<td>3.6</td>
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<td>66.7</td>
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</table>

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Factors Contributing to Adjustment

features. The first group, called CLL for short, included the individuals with CLL plus the few individuals with other types of leukemia. The next group was MM (referring to multiple myeloma, a type of cancer affecting the bone marrow for which there is no known cure, whose symptoms can often be controlled with treatment, resulting in a long, chronic course). The final three groups represented Single cancers of another specific organ (kidney, for example), Cancers affecting multiple specific organs (either simultaneously or representing recurrences within a few years), and finally, Lung cancer. Lung cancer was distinguished from cancer of other organs because it comprised a fairly large subgroup, and also because past research has suggested that lung cancer patients are often more severely affected physically than individuals with cancers of other organs, and that this can affect their emotional adjustment. For example, the PAIS-SR offers a separate set of norms for lung cancer patients.

There were significant differences in illness stage among these subgroups ($F_{[8.122]} = 4.584, p<.001$). Post-hoc tests indicated that the Single cancer of other specific organs group ($Mean=3.29, SD=.95$), the Lung cancer group ($Mean=3.20, SD=.63$), and the BC plus group ($Mean=3.00, SD=1.00$), which consisted primarily of individuals who had BC within the past few years but were currently diagnosed with cancer of another organ, had on average the most advanced stages of illness, while the CLL group ($Mean=1.24, SD=1.48$), and the BC alone group ($Mean=1.40, SD=.82$) had the least advanced stages. See Table 7 for subgroup differences on illness characteristics.
Factors Contributing to Adjustment

Table 7
Diagnostic Subgroup Differences

<table>
<thead>
<tr>
<th></th>
<th>Months Since Diagnosis Mean</th>
<th>SD</th>
<th>Months in Remission Mean</th>
<th>SD</th>
<th>Stage of Illness Mean</th>
<th>SD</th>
<th>Perception of Prognosis Mean</th>
<th>SD</th>
<th>Prior Mental Health History Mean</th>
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<td>BC Plus</td>
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<td>GC Alone</td>
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<td>16.90</td>
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<td>1.11</td>
<td>2.71</td>
<td>1.55</td>
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<td>Multiple GC</td>
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<td>Single Other</td>
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</table>

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Factors Contributing to Adjustment

There were significant differences in the number of months since diagnosis ($F_{[8,101]} = 6.117, p<.001$), with Post hoc tests showing that the CLL group had been diagnosed significantly longer ago ($\text{Mean}=59.70$ months, $\text{SD}=60.54$) than six of the eight remaining subgroups including BC alone ($\text{Mean}=19.14$, $\text{SD}=13.86$) and BC plus ($\text{Mean}=20.65$, $\text{SD}=10.38$), GC alone ($\text{Mean}=17.44$, $\text{SD}=16.90$) and Multiple GC ($\text{Mean}=17.40$, $\text{SD}=18.72$), Lung cancer ($\text{Mean}=17.31$, $\text{SD}=12.94$), and Single cancer of other organs ($\text{Mean}=19.55$, $\text{SD}=13.23$). There were no significant differences in the number of months the patients in any of these diagnostic groups had been in remission.

There were significant differences in treatment status (Chi square $[2] = 10.18, p<.006$). This was primarily accounted for by the individuals with CLL (within the OC group) more frequently anticipating having to have treatment in the future, while more of the members of the other groups had already had or were currently having treatment.

Finally, there were significant differences in perception of prognosis among the subgroups ($F_{[8,115]} = 2.434, p=.018$), with Post hoc comparisons indicating that the BC alone patients had the most positive perception of their prognosis ($\text{Mean}=1.82$, $\text{SD}=1.18$, indicating perceived prognosis as excellent to good) and the MM patients had the most negative ($\text{Mean}=4.00$, $\text{SD}=1.10$, indicating it was poor or uncertain). When responding to this question, the MM patients often added comments to the effect that they were doing fine now, but there was no known cure for MM.

Based on these results, which suggest that the features of CLL and MM being long-term, chronic, often low symptom and minimal treatment, yet incurable, makes them...
Factors Contributing to Adjustment

distinct in some ways from any of the other types of cancer being included here, some outcome variables were examined for group differences using four groups rather than three: BC, GC, CLL/MM, and OC besides CLL/MM. The BC group included all subjects with BC, either alone or in addition to another cancer. The GC group included all subjects with one or more occurrences of GC, with or without another type of cancer in addition. The OC besides CLL/MM group included the subjects with lung cancer and both single and multiple cancers of other specific organs. The CLL/MM group included the OC patients with the two specific diagnoses named.

There were no significant differences between the BC, GC, and OC groups, or between the nine diagnostic subgroups, on reported mental health difficulties prior to their cancer diagnosis.

Measures of Adjustment

Emotional distress

Emotional distress was measured using the combined emotional distress scale. As previously described, this measure consisted of the Psychological Distress subscale from the PAIS-SR, the Psychological Well-being subscale from the FLIC, and the CES-D total score, and had an internal consistency of .97. For interpretive purposes, note that since this measure is an averaged sum of $z$-scores, it has an approximate mean of 0 and SD of 92.
Factors Contributing to Adjustment

1. Positive scores indicate greater than average reported distress, while negative scores indicate less than average reported distress.

The three diagnostic groups, BC, GC, and OC were compared, using ANOVA, on scores on the combined distress measure. Differences between these groups were not significant. However, when the four diagnostic groups of BC, GC, CLL/MM, and other OC were compared, there were significant differences on distress scores ($F \ [3,126] = 3.013, p=.033$). Post hoc comparisons indicated that the GC group ($\text{Mean} = .31, \text{SD}= .16$) reported greater levels of distress than the CLL/MM group ($\text{Mean} = -.33, \text{SD}= .61$).

When the nine diagnostic subgroups described above were examined, there were again significant differences between groups ($F \ [8,121]= 2.676, p=.01$). Post hoc testing indicated that the women with GC who had had cancer more than once (Multiple GC) had the highest levels of distress ($\text{Mean} = 1.08, \text{SD}= .1147$), significantly higher than several other subgroups (BC either alone or multiple, GC alone, CLL, and MM; see Table 8 for the means). This greater degree of distress with multiple occurrences was specific to the women with multiple GC, since when an ANOVA was run to test the effect of the number of occurrences of cancer on distress in the entire sample, the differences were not significant. In fact, the trend for the overall sample was in the opposite direction, with the women with single occurrences reporting greater distress than the women with multiple occurrences. This indicates that something of interest is going on with the multiple GC group.
Factors Contributing to Adjustment

Table 8
Subgroup Differences on Distress Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC Alone</td>
<td>-.02</td>
<td>1.11</td>
</tr>
<tr>
<td>n=22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC Plus</td>
<td>-.13</td>
<td>.91</td>
</tr>
<tr>
<td>n=17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GC Alone</td>
<td>-.08</td>
<td>.95</td>
</tr>
<tr>
<td>n=25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple GC</td>
<td>1.08</td>
<td>.36</td>
</tr>
<tr>
<td>n=10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lung</td>
<td>.25</td>
<td>.84</td>
</tr>
<tr>
<td>n=13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLL</td>
<td>-.27</td>
<td>.63</td>
</tr>
<tr>
<td>n=23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MM</td>
<td>-.59</td>
<td>.46</td>
</tr>
<tr>
<td>n=6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Other</td>
<td>.11</td>
<td>1.04</td>
</tr>
<tr>
<td>n=11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple Other</td>
<td>.09</td>
<td>.66</td>
</tr>
<tr>
<td>n=4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scores are averaged sums of z-scores, with an approximate mean of 0 and approximate SD of 1. Higher scores indicate greater distress.
Facets of Emotional Distress

As described above, there were no significant differences between the BC, GC, and OC groups on the combined distress measure. However, there were significant differences on two of its components when these were tested individually. Differences on the PAIS-SR Psychological Distress subscale were significant ($F_{[2, 121]} = 3.117, p=.048$), when it was examined as a part of the MANOVA on the PAIS-SR subscales. While the overall MANOVA on all the PAIS-SR subscales was not significant, the individual ANOVAs were examined for exploratory purposes. Post hoc contrasts for the Psychological Distress subscale were not significant, although the GC group (Mean=8.14, SD=4.72) reported a greater degree of distress than the BC (Mean=6.26, SD=3.87) or OC (Mean=6.12, SD=3.38) groups.

The CES-D by itself showed significant group differences as well ($F_{[2,128]} = 3.361, p=.038$). Post hoc comparisons showed that the GC group (Mean=18.20, SD=11.58) reported greater levels of depression on the CES-D than the OC group (Mean=12.35, SD=8.64).

There were no significant group differences on the FLIC Psychological Well-being subscale when it was examined as part of the MANOVA on the FLIC. Results of this overall MANOVA are reported in the next section.

Thus, out of the three scales comprising the emotional distress measure, the clearest group differences are seen on the CES-D, which only includes items relevant to depression. The PAIS-SR scale and the FLIC scale both have the majority of their items
Factors Contributing to Adjustment

assessing depression, but also include a few items tapping anxiety.

There were significant differences between the nine diagnostic subgroups on the FLIC Psychological Distress subscale ($F[8,120] = 2.570, p=.013$) when it was examined as part of the MANOVA on the FLIC. Results of this overall MANOVA are discussed in the next section. Post hoc comparisons indicated that the multiple GC group ($\text{Mean}=23.10, \text{SD}=1.85$) reported significantly greater distress than four of the other subgroups, including BC alone ($\text{Mean}=30.86, \text{SD}=7.05$), BC plus ($\text{Mean}=30.47, \text{SD}=6.08$), GC alone ($\text{Mean}=30.10, \text{SD}=5.20$), and MM ($\text{Mean}=32.50, \text{SD}=4.59$). None of the other subgroups differed significantly from one another.

Physical Condition

The five subscales from the FLIC were tested for group differences. The overall MANOVA was significant ($F[10,244] = 2.142, p=.022$). Three of these subscales are relevant to physical health and will be discussed in this section. The univariate ANOVAs on the subscales relevant to interpersonal and emotional well-being are discussed in other sections. Group differences on the FLIC subscales are presented in Table 9.

There were significant differences for Hardship scores ($F[2,126]=4.528, p=.013$). Post hoc testing of the Hardship scale indicated that the members of the GC group ($\text{Mean}=14.09, \text{SD}=4.75$) perceived their illness as causing greater hardship to themselves and their loved ones than did either the BC ($\text{Mean}=16.70, \text{SD}=3.54$) or OC groups ($\text{Mean}=16.53, \text{SD}=4.29$). (Lower scores on the FLIC indicate poorer adjustment.)
Factors Contributing to Adjustment

Table 9
Group Differences on FLIC Subscales

<table>
<thead>
<tr>
<th></th>
<th>Breast Cancer n=39</th>
<th>Gynecological Cancers n=35</th>
<th>Total Other Cancers n=57</th>
<th>CLL/MM Only n=29</th>
<th>All Other Cancers Except CLL/MM n=28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Physical Well-being</td>
<td>47.08</td>
<td>9.81</td>
<td>43.84</td>
<td>9.83</td>
<td>47.47</td>
</tr>
<tr>
<td>Psychological Well-being</td>
<td>30.59</td>
<td>6.49</td>
<td>28.10</td>
<td>5.50</td>
<td>28.87</td>
</tr>
<tr>
<td>Hardship</td>
<td>16.70</td>
<td>3.54</td>
<td>14.09</td>
<td>4.75</td>
<td>16.56</td>
</tr>
<tr>
<td>Social Well-being</td>
<td>11.53</td>
<td>2.68</td>
<td>10.83</td>
<td>3.30</td>
<td>12.34</td>
</tr>
<tr>
<td>Nausea</td>
<td>12.78</td>
<td>2.18</td>
<td>11.43</td>
<td>3.50</td>
<td>12.75</td>
</tr>
</tbody>
</table>

Higher scores on the FLIC subscales indicate better adjustment.
Factors Contributing to Adjustment

Differences on the Nausea subscale approached significance ($F \ [2,126]=2.935, \ p=.057$). Post hoc comparisons for the Nausea subscale did not yield any significant contrasts, although the GC patients were the most bothered by nausea, by a slight margin. There were no significant differences between the BC, GC, and OC groups on Physical Well-being subscale scores.

The nine diagnostic subgroups were also compared on the same measures. The overall MANOVA was significant ($F \ [40,508] = 1.686, \ p=.006$). The results of the individual ANOVAs indicated that there were significant differences among the groups on the Physical Well-being ($F \ [8,120] = 2.697, \ p=.009$) and Hardship ($F[8,120] = 3.278, \ p=.002$) scales. Post hoc tests showed that all the significant differences for Physical Well-being involved contrasts between the multiple GC group (Mean=35.7, SD=4.83), who had the poorest Physical well-being scores, and other groups, including BC alone (Mean=49.93, SD=8.66), GC alone (Mean=47.1, SD=9.46), and CLL (Mean=49.91, SD=9.51). Similarly, for Hardship, the multiple GC patients (Mean=11.55, SD=4.06) reported greater degrees of Hardship than the BC alone (Mean=16.93, SD=3.73), CLL (Mean=18.20, SD=2.43), and MM (Mean=18.58, SD=2.89) groups. Subgroup means on all the FLIC subscales are presented in Table 10.

Interpersonal Functioning

Different facets of interpersonal functioning are tapped by subscales from the FLIC and PAIS-SR. The results of the univariate ANOVA on the FLIC Social Well-
Factors Contributing to Adjustment

Table 10
Diagnostic Subgroup Differences on FLIC Subscales

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Physical Well-being Mean</th>
<th>Physical Well-being SD</th>
<th>Psychological Well-being Mean</th>
<th>Psychological Well-being SD</th>
<th>Hardship Mean</th>
<th>Hardship SD</th>
<th>Social Well-being Mean</th>
<th>Social Well-being SD</th>
<th>Nausea Mean</th>
<th>Nausea SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC Alone n=22</td>
<td>49.93</td>
<td>8.86</td>
<td>30.68</td>
<td>6.92</td>
<td>16.93</td>
<td>3.73</td>
<td>11.11</td>
<td>3.12</td>
<td>12.71</td>
<td>2.66</td>
</tr>
<tr>
<td>BC Plus n=17</td>
<td>43.56</td>
<td>10.03</td>
<td>30.47</td>
<td>6.08</td>
<td>16.41</td>
<td>3.38</td>
<td>12.06</td>
<td>1.92</td>
<td>12.88</td>
<td>1.39</td>
</tr>
<tr>
<td>GC Alone n=25</td>
<td>47.10</td>
<td>9.46</td>
<td>30.10</td>
<td>5.20</td>
<td>15.10</td>
<td>4.70</td>
<td>11.54</td>
<td>3.16</td>
<td>11.86</td>
<td>3.13</td>
</tr>
<tr>
<td>Multiple GC n=10</td>
<td>35.70</td>
<td>4.83</td>
<td>23.10</td>
<td>1.85</td>
<td>11.55</td>
<td>4.06</td>
<td>9.05</td>
<td>3.10</td>
<td>10.35</td>
<td>4.29</td>
</tr>
<tr>
<td>Lung n=13</td>
<td>44.08</td>
<td>11.70</td>
<td>27.27</td>
<td>5.31</td>
<td>15.31</td>
<td>4.93</td>
<td>12.12</td>
<td>1.72</td>
<td>12.31</td>
<td>2.50</td>
</tr>
<tr>
<td>CLL n=23</td>
<td>49.91</td>
<td>9.37</td>
<td>29.96</td>
<td>4.80</td>
<td>18.20</td>
<td>2.37</td>
<td>12.27</td>
<td>2.15</td>
<td>13.50</td>
<td>.99</td>
</tr>
<tr>
<td>MM n=6</td>
<td>47.67</td>
<td>6.79</td>
<td>32.50</td>
<td>4.59</td>
<td>18.58</td>
<td>2.89</td>
<td>13.58</td>
<td>.59</td>
<td>13.83</td>
<td>.26</td>
</tr>
<tr>
<td>Single Other n=11</td>
<td>47.82</td>
<td>9.13</td>
<td>27.23</td>
<td>7.85</td>
<td>14.23</td>
<td>5.61</td>
<td>12.36</td>
<td>2.29</td>
<td>11.55</td>
<td>4.23</td>
</tr>
<tr>
<td>Multiple Other n=4</td>
<td>43.25</td>
<td>14.18</td>
<td>26.88</td>
<td>4.73</td>
<td>14.63</td>
<td>2.32</td>
<td>11.50</td>
<td>2.52</td>
<td>11.63</td>
<td>3.77</td>
</tr>
</tbody>
</table>

Higher scores on FLIC subscales indicate better adjustment.
Factors Contributing to Adjustment

being subscale indicated that there were significant differences between the BC, GC, and OC groups on this measure ($F_{[2,126]}=3.748, p=.026$). Post hoc testing indicated that the GC group members were less willing to spend time with friends and loved ones ($Mean=10.83, SD=3.30$) than members of the OC group ($Mean=12.34, SD=1.99$), with the BC group obtaining an intermediate score ($Mean=11.67, SD=2.55$).

When the nine subgroups were compared, the differences were significant as well ($F_{[8,120]}=2.171, p=.034$), with post hoc comparisons showing that the multiple GC group ($Mean=9.05, SD=3.10$) had poorer scores on this scale than the CLL ($Mean=12.27, SD=2.15$) and MM ($Mean=13.58, SD=.59$) groups.

The MANOVA entering all seven PAIS-SR subscales was not significant. In order to explore possible trends relevant for future research, the individual ANOVAs on the subscales relevant to interpersonal adjustment were examined as well. There were no significant differences between the BC, GC, and OC groups on the PAIS-SR subscales of Domestic Environment, Sexual Relationship, Extended Family, or Social Environment. There were also no significant differences between the BC, GC, CLL/MM, and other OC groups, or between any of the nine diagnostic subgroups, on these subscales.

Body Image

When all 145 subjects were used, group differences on BIQ scores approached significance ($F_{[2,140]}=2.881, p=.059$), but when the smaller sample omitting the generally excluded subjects (who were predominantly long term survivors of BC) was

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Factors Contributing to Adjustment

used, the group difference was even farther from reaching significance (F [2,127] =
2.656, p=.074). The comparison of the nine diagnostic subgroups was not significant,
and neither was the comparison of the four groups BC, GC, CLL/MM and other OC.

Other Areas of Adjustment

There were no significant differences between the BC, GC, and OC groups, or the
nine subgroups, on the remaining PAIS-SR subscales, Health Care Orientation and
Vocational Environment, or on the PAIS-SR total score.

Resource Measures

Use of Coping Strategies

Results of the MANOVA on group differences in use of coping strategies were
not significant. Nevertheless, the individual ANOVAs were examined for exploratory
reasons. There was a significant difference on only one of the fifteen subscales from the
COPE, Behavioral disengagement (F [2,105] = 5.084, p=.008). Post hoc testing showed
that GC patients used this strategy the most (Mean=6.32, SD=2.06), significantly more
than the OC group (Mean=5.12, SD=1.29). The contrast with the BC group (Mean=5.54,
SD=1.69) was not significant. See Table 11 for all the means and standard deviations of
the groups' use of the coping strategies.

For the entire sample, the coping strategies used the most frequently by all
subjects were Acceptance (Mean=13.5, out of a possible range from 4 to 16 points),
Factors Contributing to Adjustment

Table 11
Use of Coping Strategies by the Diagnostic Groups

<table>
<thead>
<tr>
<th></th>
<th>BC (n=39)</th>
<th>GC (n=35)</th>
<th>OC (n=57)</th>
<th>Total (n=131)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Acceptance</td>
<td>13.75</td>
<td>2.01</td>
<td>13.19</td>
<td>2.27</td>
</tr>
<tr>
<td>Positive Reinterpretation and Growth</td>
<td>12.68</td>
<td>3.08</td>
<td>13.13</td>
<td>2.78</td>
</tr>
<tr>
<td>Seeking Social Support—Emotional</td>
<td>12.29</td>
<td>2.88</td>
<td>11.81</td>
<td>3.63</td>
</tr>
<tr>
<td>Active Coping</td>
<td>12.18</td>
<td>2.36</td>
<td>11.42</td>
<td>2.29</td>
</tr>
<tr>
<td>Planning</td>
<td>11.64</td>
<td>3.12</td>
<td>11.84</td>
<td>2.91</td>
</tr>
<tr>
<td>Seeking Social Support—Instrumental</td>
<td>11.11</td>
<td>2.44</td>
<td>11.52</td>
<td>2.69</td>
</tr>
<tr>
<td>Turning to Religion</td>
<td>10.54</td>
<td>4.33</td>
<td>10.03</td>
<td>4.90</td>
</tr>
<tr>
<td>Suppression of Competing Activities</td>
<td>9.25</td>
<td>3.01</td>
<td>9.58</td>
<td>2.86</td>
</tr>
<tr>
<td>Mental Disengagement</td>
<td>8.46</td>
<td>2.62</td>
<td>9.13</td>
<td>2.42</td>
</tr>
<tr>
<td>Venting</td>
<td>8.25</td>
<td>2.47</td>
<td>9.16</td>
<td>3.16</td>
</tr>
<tr>
<td>Humor</td>
<td>8.18</td>
<td>3.86</td>
<td>8.77</td>
<td>3.73</td>
</tr>
<tr>
<td>Restraint</td>
<td>7.25</td>
<td>2.46</td>
<td>7.84</td>
<td>2.56</td>
</tr>
<tr>
<td>Behavioral Disengagement</td>
<td>5.54</td>
<td>1.69</td>
<td>6.32</td>
<td>2.06</td>
</tr>
<tr>
<td>Denial</td>
<td>4.68</td>
<td>1.06</td>
<td>5.29</td>
<td>1.85</td>
</tr>
<tr>
<td>Substance Use</td>
<td>5.00</td>
<td>2.19</td>
<td>4.94</td>
<td>1.84</td>
</tr>
</tbody>
</table>

Note: All coping scales range from 4 to 16 possible points.
Factors Contributing to Adjustment

Positive reinterpretation and growth (Mean=12.69), Seeking social support for emotional reasons (Mean=11.88), Active coping (Mean=11.79), Planning (Mean=11.67), Seeking social support for instrumental reasons (Mean=11.31), and Turning to religion (Mean=10.40). The strategies that were used the least were Alcohol and drug use (Mean=4.73), Denial (Mean=4.95), and Behavioral disengagement (Mean=5.56).

Causal attributions

The MANOVA conducted on all the established LAC subscales plus the added subscales Self-blame and Genetics was not significant for either the BC, GC, and OC comparison, or the comparison of the nine subgroups. When the individual ANOVAs were examined for the BC, GC, and OC groups, only causal attribution to bad Luck approached significance (F [2,119] = 2.956, p=.056). There were no significant post hoc comparisons, but the trend was for the GC patients to attribute the cause of their illness to bad Luck or misfortune more than the BC or OC patients did.

When the nine diagnostic subgroups were compared, only the difference on one ANOVA for causal attribution to Biological inadequacies was significant (F [8.110] = 2.247, p=.029). Post hoc comparisons indicated that the group with OC of multiple organs (Mean=12.25, SD=1.71) endorsed this type of causal attribution more than several other subgroups including the Lung cancer group (Mean=6.78, SD=.78), the CLL group (Mean=6.83, SD=.83) and the BC alone group (Mean=6.95, SD=.64).
Factors Contributing to Adjustment

Another MANOVA was conducted using the new subscales Personal responsibility and Genetics, and the old subscales shown to be distinct by the previously discussed Principal Components Analyses, Spiritual and Luck. Once again, the results of the MANOVA were not significant, and causal attribution to bad Luck was the only one of these subscales that approached significance (F [2,119] = 2.956, p=.056).

Locus of Control

The groups were compared on the four subscales from the MHLC, and the MANOVA was significant (F [8,248] = 2.303, p=.021). Examination of the individual ANOVAs showed that there was a significant difference on Chance (F [2,127]=5.178, p=.007). Post hoc comparisons indicated that GC patients attributed significantly more of the influence over the course of their illness to chance and luck (Mean=23.46, SD=7.12), a form of external locus of control, than did either the BC patients (Mean=19.36, SD=6.36) or the OC patients (Mean=19.30, SD=6.16). There were no significant differences between the BC, GC, and OC groups on the Internality (personal control), Doctors, and Other People subscales.

When these comparisons were made for the nine diagnostic subgroups, the results were similar. The results of this MANOVA were not significant, but the univariate test for the Chance subscale was significant (F [8, 121] = 2.149, p=.036), and while none of the post hoc contrasts were significant, the two GC subgroups (GC alone, Mean=23.12, SD=7.40; multiple GC, Mean=24.30, SD=6.67), and the MM group (Mean=23.67, SD=6.36).
Factors Contributing to Adjustment

SD=9.81) attributed the highest degrees of control to chance factors.

Social Support

Results of the MANOVA and univariate tests indicated there were no significant differences between the BC, GC, and OC groups on reports of Social support received from either friends or family. There were also no significant differences between the diagnostic subgroups on these measures.

Constructed Meaning Scale

The ANOVA comparing BC, GC, and OC patients was significant (F [2,128] =3.783, p=.025), with GC patients endorsing significantly fewer positive connotations of their illness (Mean=37.06, SD=7.51) than BC patients (Mean=41.95, SD=8.39). The contrast with the OC patients (Mean=40.21, SD=7.39) was not significant.

When the nine diagnostic subgroups were compared, (F [8,122] = 2.134, p=.037), post hoc testing showed that the multiple GC group (Mean=32.20, SD=7.45) reported significantly less positive meaning in their illness than the BC alone group (Mean=42.82, SD=9.34).

Other Contributing Factors

Life Events

The results of the MANOVA comparing the BC, GC, and OC groups on reports
Factors Contributing to Adjustment

of the amount and impact of Positive change, Negative change, and Total change within the past year was not significant. When the individual ANOVAs were examined, none of these were significant either.

The MANOVA comparing the subgroups was not significant. There was a significant difference on one of the individual ANOVAs, reported Positive change (F[8.121] = 2.390, p=.02). Post hoc testing showed that the multiple GC group (Mean=1.70, SD=2.31) reported significantly less Positive change than the BC alone group (Mean=7.86, SD=5.54).

Primary Appraisal

The three specific threats, threat to Self-esteem, threat to Loved one's well-being, and threat to Femininity, that were measured by more than one appraisal scale item were entered into a MANOVA to test for group differences. The results were significant (F[6.246] = 5.532, p<.001). When the individual ANOVAs were examined, there were significant differences between the groups on perceived threat to Self-esteem (F[2.125]=3.097, p=.049). The GC patients perceived this to be a threat the most (Mean=10.06, SD=4.47) and OC perceived this to be a threat the least (Mean=8.25, SD=2.91), but none of the post hoc comparisons were significant. There were also significant differences between the groups on perceived threat to sense of Femininity, (F[2.125]=14.67, p<.001). Both the BC group (Mean=12.16, SD=5.06) and the GC group (Mean=11.61, SD=4.78) perceived this to be a significantly greater threat than did the OC
Factors Contributing to Adjustment

group (Mean=7.81, SD=3.28). Perception of threat to a Loved one's emotional and physical well-being was not significantly different among the groups.

These threats were examined for differences among the nine subgroups as well. The results of the MANOVA were significant (F [24,340] = 2.531, p<.001). The ANOVAs indicated that there was a significant difference on threat to Femininity (F [8,119] =4.14, p<.001). The significant post hoc comparisons all involved differences between OC subgroups, especially CLL, who perceived this as less of a threat, and the BC and GC subgroups, who perceived it as more of a threat. There were no significant differences between the subgroups for threat of harm to Loved one or threat to Self-esteem. Examination of the subgroup means indicated that there was a trend towards the multiple GC group reporting the greatest perceived threat to Self-esteem. While none of the contrasts were significant, the multiple GC group had a mean score several points higher than any of the other subgroups.

The remaining six threats that were measured by one item each were entered into a separate MANOVA, which was significant as well (F [12,240] = 2.430, p=.005). Examination of the ANOVAs showed that there were significant differences between groups for threat of possible changes in Sex life (F [2,125]=4.848, p=.009). Post hoc testing indicated that the GC group (Mean=3.30, SD=1.63) considered this to be more of a threat than the OC group (Mean=2.30, SD=1.31). The BC group (Mean=2.64, SD=1.53) did not significantly differ from either of the other groups. There were also significant group differences on perceived threat to future Fertility (F [2,125]=9.612,
Factors Contributing to Adjustment

Post hoc testing indicated that the GC group perceived this to be more of a threat (Mean=2.24, SD=1.80) than either the BC group (Mean=1.13, SD=.57) or the OC group (Mean=1.29, SD=.99). There were no significant differences between the BC, GC, and OC groups on perceptions of threat to Own health, Strain on finances, interference with achieving a Goal at work, or Losing respect for someone else.

A MANOVA was conducted for these threats on the nine diagnostic subgroups as well. This was significant (F [48,565] = 1.557, p=.012). Only the ANOVA for threat to Fertility was significant (F [8,119] = 4.126, p<001). The post hoc comparisons indicated that the multiple GC group (Mean=3.00, SD=1.94) perceived this to be a significantly greater threat than most of the other subgroups, including BC alone (Mean=1.23, SD=.75), BC plus (Mean=1.00, SD=0), Lung (Mean=1.31, SD=1.11), CLL (Mean=1.05, SD=.21), and MM (Mean=1.00, SD=0). The GC alone patients had an intermediate mean of 1.91 (SD=1.68), not significantly different from any of the other subgroups.

Younger women, particularly those with GC, who had no children or only one child (usually age 7 or younger) were most likely to respond that the possibility of "not being able to have as many children as you want" applied "a lot" or "a great deal" to their situation as a cancer patient. When the women who identified this as involving "a lot" or "a great deal" of threat (Mean=.75, SD=.88) were compared to those who identified it as "does not apply" or "applies a little" (Mean=-.06, SD=.88), the women who identified this as a great threat had significantly greater levels of distress as measured by the combined distress scale(t[125] = 3.463, p=.001).
Factors Contributing to Adjustment

**Secondary Appraisal**

The diagnostic groups were compared on the four Secondary appraisal items. The MANOVA was significant ($F[8,250] = 2.235, p=.026$). Examination of the ANOVAs showed that there were significant differences in how much the groups thought that their situation was "Something that you can change or do something about" ($F[2,128]=4.022, p=.02$) and how much they thought the situation was "One in which you have to hold yourself back from doing something you want to do" ($F[2,128]=3.264, p=.041$). Post hoc comparisons indicated that the GC patients were the least likely (Mean=1.52, SD=1.21) to perceive the situation as one they could change, significantly less so than the BC patients (Mean=2.33, SD=1.17). Post hoc comparisons on Hold back from doing something indicated that the BC patients were least likely to endorse this view (Mean=.93, SD=1.16), significantly less so than the OC patients (Mean=1.56, SD=1.29). The groups did not significantly differ on appraising the situation as "Something that you have to accept", or "One in which you need to know more before you can act". The nine diagnostic subgroups did not differ significantly on any of the secondary appraisals.

**Discussion of Group Differences**

Many of the differences between diagnostic groups involved contrasts between the women with GC and the other groups. The women with GC, especially those with multiple occurrences, tended to experience the most depression and general emotional distress, and to perceive their illness as causing the greatest amount of hardship to
Factors Contributing to Adjustment

themselves and their loved ones. Subjects in the multiple GC group also felt more physically debilitated by their illness than the other groups. The GC patients in general were younger on average than patients in the other groups, and more likely to indicate that their future child bearing plans had been threatened by their illness.

These findings were consistent in highlighting women with multiple occurrences of GC as representing a particularly vulnerable subgroup. The primary characteristic of the illnesses that distinguished this group from the others was the treatment they had received; they did not differ from the others in terms of stage, perceived prognosis, or recency of diagnosis. All of the women in this group had had fairly extensive surgical procedures done, and half of the women in this subgroup had each been through four or five separate surgeries. Not only might repeated surgeries be traumatic in and of themselves, as well as being physically debilitating and disruptive to one's regular activities, but this suggests that these women may have had greater difficulty getting their illnesses under control, leading to a protracted period of anxiety about survival.

The multiple GC group experienced greater distress even though the trend for the overall sample was for women experiencing a first occurrence to experience more distress than those with multiple occurrences. One might speculate that women experiencing a first occurrence have greater difficulty coping with this unfamiliar and frightening situation, while women who have survived it once already might come into it with more of a sense of mastery, knowing what to expect, how to cope, and expecting a better outcome. Possibly this was different for the women in the multiple GC group because
Factors Contributing to Adjustment

many experienced an extended period of treatment punctuated by multiple surgeries, while other subjects who had experienced multiple occurrences often had several years in between. Thus, the multiple GC group may have experienced this process as one long illness with repeated setbacks rather than having time to feel that they had recovered from one illness before having to contend with another one.

On the other end of the spectrum from the subjects with GC were the subjects who had CLL. These subjects were the least emotionally distressed, the least negatively affected physically, and they had typically not undergone as extensive treatment as the other groups. In many cases these subjects were in a “watch and wait” phase of their illness and had not undergone any treatment at all. Some of these subjects had also been living with their illness for years and had had time to get past the initial shock of being diagnosed. While one cannot say that these subjects were not under some degree of stress, since they had a diagnosis of an “incurable” disease, these results suggest that it is not simply having to face a serious and potentially fatal illness that increases emotional distress. The process of going through treatment and enduring changes in physical functioning seems to be more of the operative factor.

On the other outcome measures, contrary to what was predicted, the groups did not differ in terms of sexual adjustment, close interpersonal relationships, or body image. The only significant difference was that the subjects with GC did indicate less willingness to spend time with friends and loved ones than other groups, possibly because it was more common for them not to feel up to socializing due to their poorer physical well-
Factors Contributing to Adjustment

being. The lack of group differences in sexual adjustment is particularly surprising in light of a good deal of previous research showing that GC patients often have difficulty with sexual adjustment. Anecdotal evidence from the ACOR online discussion groups also supports the idea that this is a topic of great concern for at least some individuals with GC. One possible explanation for the results in this study is that this difference may become more striking later in recovery. While being treated for cancer, patients with any type may experience fatigue and other physical symptoms deleterious to sexual functioning. For patients with types other than GC these effects are only temporary, while individuals who have had GC may have permanent changes to their functioning.

In addition to the group differences on some of the outcome measures, there were group differences on what subjects appraised to be at stake in their situation, how much control they had over the course of their illness, and to a lesser extent in the type of coping strategies used. The differences in primary appraisals included the following: The women with GC and BC were more likely to feel that their femininity and their perceptions of themselves as a woman were threatened by their illness, and this may contribute to poorer self-esteem in general. The women with GC additionally perceived more threat to their sex life and to their future fertility. These results do support the idea that women with gender-specific cancers do have at least some potential sources of stress beyond what women with other types have to contend with. While there were no group differences on the other primary appraisals examined in this study, it is possible that there are threats unique to other diagnoses that were not assessed in this study. Thus, it cannot
Factors Contributing to Adjustment

be assumed from these results that women with gender-specific cancers report higher levels of overall primary appraisal of threat than women with other types, only that they are more vulnerable in the specific areas mentioned: self-perceptions, sexual functioning, and child bearing plans.

The women with GC were the least likely to appraise their situation as one they could change or do something about. They were more likely to attribute the control over their illness to chance than the other groups, and there was a trend towards them also attributing the cause of their illness to bad luck. Two possible reasons for this are that these women did tend to be younger, making the experience of having cancer more unusual among their age cohort and thus perhaps contributing to the perception that they are unlucky to have this happen to them. Another possible explanation is the information they received from health care providers, perhaps indicating that the cause is unknown or that the course is hard to predict. Additionally, some types of GC have been linked to sexually transmitted diseases (Gimeno et al., 1993). This link has been the most well documented with regard to cervical cancer, a type reported by only a few women in this study. HIV infection has been reported to increase vulnerability to a wider range of gynecological cancers than other STDs (Rojansky, 1996). Although it is not known if this played a role for any of the individuals in this study or not, such a cause could potentially contribute to the perception that one was unlucky to get the disease. Whatever the reason for attributing a causal role to bad luck, when subjects did so this was associated with greater distress.
Factors Contributing to Adjustment

For the most part, the diagnostic groups did not differ in the type of coping strategies they used. The only difference was that the subjects with GC were more likely to use Behavioral disengagement. This scale contains items such as "I've been giving up the attempt to get what I want", which would be consistent with the previous results indicating that this group attributed greater control over the illness to chance. If one believes the course one's illness takes is controlled by random, uncontrollable factors, one may feel helpless or powerless and more inclined to give up on active problem solving efforts.

The diagnostic groups did not differ from each other in terms of mental health history prior to cancer diagnosis. This supports the idea that differences in distress level noted in this study did indeed represent adjustment to cancer, not pre-existing differences in emotional adjustment. The current results are consistent with previous research that has indicated that past adjustment is a significant predictor of how well people will adapt to a new life stress such as a major illness.

To summarize, the subjects with GC, especially those with multiple occurrences, reported the highest levels of emotional distress. This was contributed to by their poorer physical condition, more extensive treatment, younger age, additional sources of primary appraisal threat, and being more likely to attribute control over the course of their illness to chance.

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Factors Contributing to Adjustment

**Outcome Variables**

Most of the outcome variables correlated significantly with each other. The correlation coefficients are presented in Table 12. In spite of being inter-related, most of them were examined individually, either because they covered content of specific interest in this study, or because when scales were tried to be combined with each other the resulting combinations did not have acceptable internal consistency.

**Factors Contributing to Emotional Distress**

**Demographics and Illness Characteristics**

A regression analysis was performed to assess the contribution of the demographic variables, including income, age, and education to emotional distress, as measured by the combined distress scale described above. (The effect of marital status was tested separately using ANOVA, since this variable is categorical, and there were no significant differences in distress scores based on marital status.) In this and all subsequent regression analyses that will be described, the independent variables were entered stepwise. This analysis of the continuous demographic variables resulted in an equation with a multiple correlation of .276, accounting for 7.6% of the variance in distress scores (overall $F_{[1,124]} = 10.231, p = .002$). Age was the only significant individual contributor ($R^2$-squared change = 7.6, $\beta = -.28, p = .002$); younger age was associated with greater distress.
### Table 12
Intercorrelations of Outcome Variables

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<th></th>
<th>Distress</th>
<th>PAIS Total</th>
<th>PAIS I</th>
<th>PAIS II</th>
<th>PAIS III</th>
<th>PAIS IV</th>
<th>PAIS V</th>
<th>PAIS VI</th>
<th>PAIS VII</th>
<th>FLIC Phys</th>
<th>FLIC Psyc</th>
<th>FLIC Hard</th>
<th>FLIC Soc</th>
<th>FLIC Nau</th>
<th>CES D</th>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<td>0.38**</td>
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<td>0.39**</td>
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<td>FLIC Soc</td>
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<td>-0.50**</td>
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<td>-0.26**</td>
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<td>FLIC Nau</td>
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<tr>
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<td>0.43**</td>
<td>0.29**</td>
<td>0.47**</td>
<td>0.23**</td>
<td>0.36**</td>
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<tr>
<td>BIQ</td>
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<td>-0.30**</td>
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<td>0.33**</td>
<td>0.34**</td>
<td>0.01</td>
<td>-0.45**</td>
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</table>

* significant at p<0.05 (2-tailed)
** significant at p<0.01 (2-tailed)

Distress = Combined Distress Scale, consisting of PAIS VII, FLIC Psyc, and CES-D. Higher scores indicate greater distress.

For PAIS Total and all PAIS subscales, higher scores indicate poorer adjustment.

PAIS-I = Health Care Orientation
PAIS-II = Vocational Environment
PAIS-III = Domestic Environment
PAIS-IV = Sexual Adjustment
PAIS-V = Extended Family Adjustment
PAIS-VI = Social Environment
PAIS-VII = Psychological Distress

For all FLIC subscales, higher scores indicate better adjustment.

FLIC Phys = Physical Well-being
FLIC Psyc = Psychological Well-being
FLIC Hard = Hardship
FLIC Soc = Social Well-being
FLIC Nau = Nausea

CES-D = Center for Epidemiological Studies - Depression scale, higher scores indicate more reported depressive symptoms.

BIQ = Body Image Questionnaire, higher scores indicate more positive body image.
Factors Contributing to Adjustment

Number of surgeries the subject had undergone was entered into a regression equation. This variable contributed significantly to distress scores (Multiple $R = .254$, $F_{[1,128]} = 8.794$, $p = .004$), accounting for 6.4% of the variance. There were no significant contributors to variance in emotional distress scores when the independent variables number of occurrences of cancer, the stage of the illness, treatment status (past, present or anticipating), perception of prognosis, months since diagnosis or months in remission were evaluated with another regression equation. The length of time between when the diagnosis was made and when remission status was achieved, in other words, the length of time it took to get the illness under control, also did not contribute significantly to distress.

When a 3x5 factorial ANOVA was conducted to test for the interaction of cancer site (using the three groups, BC, GC, and OC) and severity (based on stage, rated as 0 through 4) there were no significant main effects or interactions.

Prior Mental Health History

Subjects were categorized as having no prior mental health history, history of mild adjustment problems (for example, having sought therapy briefly to cope with a divorce), or history of more significant problems (such as recurrent episodes of depression requiring professional intervention). Distress levels were compared for these three groups using ANOVA. There was a significant difference between groups ($F_{[2,126]} = 3.967$, $p = .021$), with post hoc testing indicating that the women with a prior
Factors Contributing to Adjustment

history of moderate to severe problems (Mean = .50, SD=.94) responded with greater levels of current distress than those who had no prior MH history (Mean = -.11, SD=.87). Additionally, the minimum and maximum distress scores were both higher for the group with significant prior problems.

Causal Attributions

A regression analysis, with the variables entered stepwise, was performed to assess the contribution of the LAC subscales to overall distress scores. First, entering the established LAC subscales plus the added subscales Self-blame and Genetics resulted in an equation with a multiple correlation of .402, accounting for 16.1% of the variance in distress scores (F [2,115] = 11.073, p<.001). Bad Luck (p=.006) and Self-blame (p<.001) were the significant individual contributors. Next, another regression analyses was performed entering the new subscales Personal responsibility and Genetics and the subscales shown to be distinct from these, Spiritual determinism and Luck. This resulted in an equation with a multiple correlation of .394, accounting for 15.5% of the variance in distress scores (F [2,115] = 10.566, p<.001). Bad Luck (p=.003) and Personal responsibility (p=.01) were the significant individual contributors. See Tables 13 and 14 for the results of these regression analyses.

Locus of Control

A regression analysis, entering the variables stepwise, was performed to assess the
Factors Contributing to Adjustment

Table 13
Stepwise Regression Analysis
Variance in Distress Scores Accounted for by Causal Attributions
All LAC Subscales

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>$R^2$</th>
<th>Change in $R^2$</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-blame</td>
<td>.10</td>
<td>.10</td>
<td>&lt;.001</td>
<td>.27</td>
</tr>
<tr>
<td>Bad Luck</td>
<td>.16</td>
<td>.06</td>
<td>.006</td>
<td>.25</td>
</tr>
</tbody>
</table>

None of the other subscales met criteria for entry into the equation.

Table 14
Stepwise Regression Analysis
Variance in Distress Scores Accounted for by Causal Attributions
Personal Responsibility, Luck, Genetics, and Spiritual Determinism

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>$R^2$</th>
<th>Change in $R^2$</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Responsibility</td>
<td>.10</td>
<td>.10</td>
<td>.001</td>
<td>.26</td>
</tr>
<tr>
<td>Bad Luck</td>
<td>.16</td>
<td>.06</td>
<td>.007</td>
<td>.24</td>
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</tbody>
</table>

Genetics and Spiritual Determinism did not meet criteria for entry into the equation.

Table 15
Stepwise Regression Analysis
Variance in Distress Scores Accounted for by Attributions of Control

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>$R^2$</th>
<th>Change in $R^2$</th>
<th>Sig</th>
<th>Beta</th>
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<tr>
<td>Chance</td>
<td>.10</td>
<td>.10</td>
<td>&lt;.001</td>
<td>.31</td>
</tr>
</tbody>
</table>

Note: No other variables met criteria for entry into the equation.
Factors Contributing to Adjustment

contribution of the four MHLC scales to overall distress scores. This resulted in an equation with a multiple correlation of .309, accounting for 9.6% of the variance in overall distress scores ($F[1,127]=13.413, p<.001$). The only significant contributor to predicting distress was Chance ($p<.001$; see Table 15). Subjects who attributed greater control over the course of their illness to Chance experienced greater reported distress.

Coping Strategies

A regression analysis with the variables entered stepwise was performed to assess the contribution of the COPE subscales to distress scores. This resulted in an equation with a multiple correlation of .742, accounting for 55% of the variance in distress scores ($F[5.101]=24.677, p<.001$). More use of Focus on and venting of emotions (henceforth referred to as "Venting", $p<.001$), Behavioral disengagement (that is, giving up trying to deal with the stressful situation and withdrawing effort from it, $p=.001$), use of Alcohol and/or drugs (which will be referred to as "Substance use", $p=.002$), and Restraint coping ($p=.02$) were all significantly associated with greater levels of distress. More use of Positive reinterpretation and growth ($p=.02$) was associated with less reported distress. These results are presented in Table 16.

Two other coping scales correlated with distress scores at a significant level, although they did not emerge as significant contributors in the regression equation. Greater use of Suppression of competing activities correlated .28 ($p=.002$) with greater distress, and greater use of Mental disengagement (distracting oneself from thinking...
Factors Contributing to Adjustment

Table 16
Stepwise Regression Analysis
Variance in Distress Scores Accounted for by Coping Strategies

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>$R^2$</th>
<th>Change In $R^2$</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venting</td>
<td>.22</td>
<td>.22</td>
<td>&lt;.001</td>
<td>.37</td>
</tr>
<tr>
<td>Behavioral Disengagement</td>
<td>.42</td>
<td>.20</td>
<td>&lt;.001</td>
<td>.41</td>
</tr>
<tr>
<td>Substance Use</td>
<td>.50</td>
<td>.08</td>
<td>&lt;.001</td>
<td>.29</td>
</tr>
<tr>
<td>Positive Reinterpretation and Growth</td>
<td>.52</td>
<td>.026</td>
<td>.02</td>
<td>-.18</td>
</tr>
<tr>
<td>Restraint</td>
<td>.55</td>
<td>.026</td>
<td>.02</td>
<td>.16</td>
</tr>
</tbody>
</table>

Note: The other coping scales did not meet criteria for entry into the equation.
Factors Contributing to Adjustment

about the illness by watching more television, sleeping, and the like) correlated .36
(p<.001) with greater distress.

Constructed Meaning Scale

Scores on the CMS correlated significantly with distress scores (-.51, p<.001):
giving more positive meaning to the illness experience was associated with less distress.

Life Events and Social Support

A regression analysis was performed to assess the contribution of the Life change
(Positive, Negative, and Total) and Social support (Friends and Family) scales to distress
scores. This combined stepwise analysis resulted in a multiple correlation of .556,
accounting for 29.8% of the variance in distress scores (F[2,119]=26.634, p<.001) with
Negative change (p<.001) and Support from friends (p<.001) being the significant
contributors. More Negative change was associated with more distress, while more
Support from friends was associated with less distress. See Table 17 for these results.

Primary Appraisal

Appraisals of specific threats were entered stepwise into a regression equation
predicting distress (see Table 18). When the three scales, threat to Self-esteem, harm to a
Loved one, and threat to sense of Femininity were entered, this resulted in a multiple
correlation of .572, accounting for 32.8% of the variance in distress scores (F[3,123] =
Factors Contributing to Adjustment

### Table 17
Stepwise Regression Analysis
Variance in Distress Scores Accounted for by Life Events and Social Support

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>$R^2$</th>
<th>Change in $R^2$</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support from Friends</td>
<td>.18</td>
<td>.18</td>
<td>&lt;.001</td>
<td>-.39</td>
</tr>
<tr>
<td>Negative Change</td>
<td>.56</td>
<td>.13</td>
<td>&lt;.001</td>
<td>.36</td>
</tr>
</tbody>
</table>

The variables Support from Family and Positive Change did not meet criteria for entry into the equation.

### Table 18
Stepwise Regression Analysis
Variance in Distress Scores Accounted for by Primary Appraisals
Threat to Self-esteem, Femininity, and Harm to Loved One Scales

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>$R^2$</th>
<th>Change in $R^2$</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem</td>
<td>.26</td>
<td>.26</td>
<td>&lt;.001</td>
<td>.35</td>
</tr>
<tr>
<td>Femininity</td>
<td>.30</td>
<td>.04</td>
<td>.009</td>
<td>.24</td>
</tr>
<tr>
<td>Harm to Loved One</td>
<td>.33</td>
<td>.03</td>
<td>.035</td>
<td>.16</td>
</tr>
</tbody>
</table>

### Table 19
Stepwise Regression Analysis
Variance in Distress Scores Accounted for by Primary Appraisals
Singleton Items Measuring Threats

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>$R^2$</th>
<th>Change in $R^2$</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes to Sex Life</td>
<td>.14</td>
<td>.14</td>
<td>&lt;.001</td>
<td>.37</td>
</tr>
<tr>
<td>Goal at Work</td>
<td>.23</td>
<td>.09</td>
<td>&lt;.001</td>
<td>.25</td>
</tr>
<tr>
<td>Own Health and Well-being</td>
<td>.26</td>
<td>.03</td>
<td>.022</td>
<td>.19</td>
</tr>
<tr>
<td>Fertility</td>
<td>.29</td>
<td>.02</td>
<td>.046</td>
<td>.17</td>
</tr>
</tbody>
</table>

The items Strain on Finances and Losing Respect for Someone did not meet criteria for entry into the equation.

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Factors Contributing to Adjustment

19.99, $p<.001$). All three scales were significant contributors to this equation: Self-esteem at $p<.001$, Femininity at $p=.005$, and harm to Loved one at $p=.035$.

The appraisals of other threats that were represented by only one item each were entered stepwise into a separate regression equation (see Table 19). The resulting multiple correlation was .535, accounting for 28.6% of the variance in distress scores ($F_{[4,122]} = 7.629$, $p<.001$). Degree of threatened harm to Own health, safety, or physical well-being ($p=.025$), threat to achieving an important Goal at work ($p=.01$), and threatened changes to Sex life ($p=.006$), and threat to Fertility ($p=.046$) were the significant contributors.

Variables Significantly Correlated with Emotional Distress

Many of the variables investigated in this study correlated significantly with scores on the combined emotional distress scale. Correlation coefficients of distress scores with the different sets of other variables are presented in Tables 20, 21, and 22.

The coping strategies associated significantly with reported distress were Suppression of competing activities, Mental disengagement, Behavioral disengagement, Venting, and Substance Use. Using these strategies more was associated with higher levels of distress. None of the other coping strategies were associated significantly with distress scores. Higher scores on the Constructed Meaning Scale were associated with lower distress scores.
Factors Contributing to Adjustment

Table 20
Correlations of Coping Scales with Emotional Distress

<table>
<thead>
<tr>
<th>Coping Strategy</th>
<th>Correlation with Distress</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPE - Acceptance</td>
<td>-.16</td>
</tr>
<tr>
<td>COPE - Active Coping</td>
<td>-.10</td>
</tr>
<tr>
<td>COPE - Behavioral Disengagement</td>
<td>.44**</td>
</tr>
<tr>
<td>COPE - Denial</td>
<td>.13</td>
</tr>
<tr>
<td>COPE - Humor</td>
<td>-.07</td>
</tr>
<tr>
<td>COPE - Mental Disengagement</td>
<td>.34**</td>
</tr>
<tr>
<td>COPE - Planning</td>
<td>-.04</td>
</tr>
<tr>
<td>COPE - Positive Reinterpretation and Growth</td>
<td>-.15</td>
</tr>
<tr>
<td>COPE - Restraint</td>
<td>.17</td>
</tr>
<tr>
<td>COPE - Seeking Social Support for Emotional Reasons</td>
<td>-.13</td>
</tr>
<tr>
<td>COPE - Seeking Social Support for Instrumental Reasons</td>
<td>-.01</td>
</tr>
<tr>
<td>COPE - Substance Use</td>
<td>.41**</td>
</tr>
<tr>
<td>COPE - Suppression of Competing Activities</td>
<td>.25**</td>
</tr>
<tr>
<td>COPE - Turning to Religion</td>
<td>-.05</td>
</tr>
<tr>
<td>COPE - Venting</td>
<td>.44**</td>
</tr>
</tbody>
</table>

* significant at p<.05 (2-tailed)
** significant at p<.01 (2-tailed)

Note that higher scores on the Distress measure indicates poorer adjustment, and higher scores on the COPE scales indicate greater use of that coping strategy. Thus positive correlations indicate an association with poorer adjustment, while negative correlations indicate that use of that strategy is associated with better adjustment.
Factors Contributing to Adjustment

Attributing locus of control over illness course to Chance was associated with greater distress. Internal locus of control, and attributing control to Doctors or Other people were not significantly associated with reported distress.

Causal attributions to Luck and to the Personal responsibility component, as well as to a number of the smaller subscales of the LAC that make up different facets of Personal responsibility, including Interpersonal conflicts, Unpleasant environment, chosen Lifestyle, Biological inadequacies, and the added Self-blame items, were all associated with higher levels of reported distress. Attributing cause to Spiritual forces, Genetics, or Intrapersonal conflicts was not associated either positively or negatively with distress scores.

Greater Social support from both friends and family was associated with lower levels of distress. Higher levels of distress were associated with greater number and emotional impact of negative life events, and total life events, while subjects who reported a greater number and emotional impact of positive life events tended to report less distress. Subjects who reported less adequate insurance coverage also tended to report higher distress levels.

Every single primary appraisal measure was significantly correlated with distress level. With greater perceived threat to anything the individual found important, the amount of reported distress increased. The secondary appraisal of perceiving the situation as one in which one had to Hold back from doing something one wanted to do...
Factors Contributing to Adjustment

Table 21
Correlations of Other Variables with Emotional Distress

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS</td>
<td>-.51**</td>
</tr>
<tr>
<td>MHLC – Internality</td>
<td>.05</td>
</tr>
<tr>
<td>MHLC – Chance</td>
<td>.31**</td>
</tr>
<tr>
<td>MHLC – Doctors</td>
<td>.09</td>
</tr>
<tr>
<td>MHLC – Other People</td>
<td>.16</td>
</tr>
<tr>
<td>Social Support – Friends</td>
<td>-.44**</td>
</tr>
<tr>
<td>Social Support – Family</td>
<td>-.23*</td>
</tr>
<tr>
<td>Positive Life Events</td>
<td>-.22*</td>
</tr>
<tr>
<td>Negative Life Events</td>
<td>.37**</td>
</tr>
<tr>
<td>Total Life Events</td>
<td>.19*</td>
</tr>
<tr>
<td>LAC – Personal Responsibility</td>
<td>.32**</td>
</tr>
<tr>
<td>LAC – Interpersonal Conflicts</td>
<td>.31**</td>
</tr>
<tr>
<td>LAC – Luck</td>
<td>.34**</td>
</tr>
<tr>
<td>LAC – Unpleasant Environment</td>
<td>.23*</td>
</tr>
<tr>
<td>LAC – Lifestyle Factors</td>
<td>.27**</td>
</tr>
<tr>
<td>LAC – Biological Inadequacies</td>
<td>.23**</td>
</tr>
<tr>
<td>LAC – Self-blame</td>
<td>.34**</td>
</tr>
<tr>
<td>LAC – Genetics</td>
<td>.16</td>
</tr>
<tr>
<td>LAC – Spiritual Determinism</td>
<td>.05</td>
</tr>
<tr>
<td>LAC – Intrapersonal Conflicts</td>
<td>.16</td>
</tr>
<tr>
<td>Threat to Self-esteem</td>
<td>.51**</td>
</tr>
<tr>
<td>Threat to Loved One’s Well-being</td>
<td>.26**</td>
</tr>
<tr>
<td>Threat to Femininity</td>
<td>.43**</td>
</tr>
<tr>
<td>Threat to Own Health and Well-being</td>
<td>.31**</td>
</tr>
<tr>
<td>Threat to Achieving Goal at Work</td>
<td>.35**</td>
</tr>
<tr>
<td>Threat to Finances</td>
<td>.23**</td>
</tr>
<tr>
<td>Threat of Losing Respect for Someone</td>
<td>.25**</td>
</tr>
<tr>
<td>Threat to Sex Life</td>
<td>.37**</td>
</tr>
<tr>
<td>Threat to Fertility</td>
<td>.31**</td>
</tr>
<tr>
<td>Secondary Appraisal – Change or Do Something</td>
<td>-.001</td>
</tr>
<tr>
<td>Secondary Appraisal – Accept</td>
<td>.07</td>
</tr>
<tr>
<td>Secondary Appraisal – Know More Before Acting</td>
<td>-.09</td>
</tr>
<tr>
<td>Secondary Appraisal – Hold Back</td>
<td>.28**</td>
</tr>
</tbody>
</table>

Higher scores on the combined distress scale indicate greater distress, thus positive correlations indicate an association with greater distress.

* significant at p<.05
** significant at p<.01

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was associated with higher levels of distress as well. The other secondary appraisals did not correlate significantly with distress scores.

Older subjects, and those who had been married for longer periods of time, tended to report less distress. Subjects with a prior history of mental health problems tended to report more distress. None of the other demographic variables were associated with distress levels.

None of the continuously measured illness related variables, including length of time since diagnosis or time in remission, stage, number of occurrences, or perception of prognosis, correlated at a significant level with reported distress.

Use of Coping Strategies

Since use of coping strategies played a strong role in contributing to reported emotional distress, the pattern of correlations was examined to see if there were any consistent differences in which coping strategies were used more based on illness characteristics including recency of diagnosis or severity. Differences in use of coping strategies based on demographic information were examined as well.

The coping strategies significantly associated with time since diagnosis were Suppression of competing activities, Mental disengagement, and Venting. Use of all of these declined with greater lengths of time since diagnosis. Length of time in remission was significantly associated with the use of Behavioral disengagement. The longer one had been in remission, there was less need for active behavioral efforts to deal with the
Factors Contributing to Adjustment

Table 22
Correlations of Demographic and Illness Characteristics with Distress Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequacy of Insurance Coverage</td>
<td>.18*</td>
</tr>
<tr>
<td>Age</td>
<td>-.28**</td>
</tr>
<tr>
<td>Length of Marriage</td>
<td>-.25*</td>
</tr>
<tr>
<td>Education</td>
<td>.00</td>
</tr>
<tr>
<td>Income</td>
<td>.07</td>
</tr>
<tr>
<td>Stage of Illness</td>
<td>.06</td>
</tr>
<tr>
<td>Prior Mental Health History</td>
<td>.23**</td>
</tr>
<tr>
<td>Number of Surgeries</td>
<td>.25**</td>
</tr>
<tr>
<td>Number of Occurrences</td>
<td>-.09</td>
</tr>
<tr>
<td>Time Since Diagnosis</td>
<td>-.14</td>
</tr>
<tr>
<td>Time in Remission</td>
<td>-.07</td>
</tr>
<tr>
<td>Perception of Prognosis</td>
<td>.07</td>
</tr>
</tbody>
</table>

Higher scores on the combined distress scale indicate greater distress, thus positive correlations indicate an association with greater distress.

* significant at $p < .05$
** significant at $p < .01$
Factors Contributing to Adjustment

situation. Length of time in remission also had a significant negative association with Seeking social support for instrumental reasons. The greater the length of time in remission, there was less tendency to seek out tangible assistance from others.

Two indicators of illness severity, stage and number of occurrences, were both significantly associated only with greater use of Mental disengagement. Perception of prognosis was not associated significantly with use of any of the coping strategies.

Use of a number of different coping strategies was significantly associated with age. Older subjects tended to use more Turning to religion and Acceptance, while using less Suppression of Competing Activities, Mental Disengagement, and Venting. Higher education level correlated significantly with only one coping strategy, greater use of Seeking social support for emotional reasons. Only one of the coping strategies correlated significantly with prior mental health history. Individuals with greater reported prior mental health problems tended to use a greater degree Acceptance when facing their current illness.

Discussion of Factors Contributing to Emotional Distress

The findings in this study are consistent with prior studies in this area that have demonstrated the importance of effective coping strategies, social support, and additional life events in determining how successfully an individual will adapt to the stress of a serious illness. It is interesting to note that aspects of the illness and treatment were
Factors Contributing to Adjustment

generally not associated significantly with adjustment, with the exception of number of surgical procedures. Emotional well-being did not depend on how recently subjects had been diagnosed or how long they had been in remission. Severity of the illness, as indicated by stage, perceived prognosis, or time it took for remission status to be achieved, also made no difference in emotional distress levels. This reinforces how important attitude and outlook can be in determining response to a stressful situation.

For all subjects, one of the factors that affected adjustment the most significantly was the type of coping strategies used. It is of interest that only the coping strategies that might be considered to generally be less adaptive contributed significantly to levels of distress. Coping strategies such as active planning, acceptance, and seeking out social support, generally regarded as more adaptive, were used a great deal by subjects in this sample. However, none of these coping strategies were significantly associated with emotional distress, and the degree to which they were used did not discriminate who was better adjusted. What made the difference was if subjects used some of the less adaptive strategies in addition to or instead of the more adaptive strategies. Subjects who disengaged from the situation, gave up on taking action to deal with it and instead distracted themselves from thinking about it, or even used alcohol or drugs to avoid thinking about it, tended not to fare as well; neither did subjects who spent a lot of time focusing on negative emotions aroused by their situation and venting to others about these emotions. Suppression of competing activities, putting aside other things in one's life to focus on dealing with the illness, was also associated with poorer adjustment. While this
Factors Contributing to Adjustment

may be adaptive at certain times, such as soon after diagnosis or during treatment, it seems that over time it is more adaptive to try to return to as much of one's usual activities as possible. In general the less adaptive coping strategies were used the least frequently, and it is likely that using them occasionally is not problematic, but when individuals did rely on them too much adjustment was negatively affected.

More positive scores on the Constructed Meaning Scale were strongly associated with reports of less emotional distress. This scale contains both positive and negative meanings that individuals may attach to their illness. Subjects who were able to construct a positive meaning for their illness, such as that it was making them a stronger person, and who did not endorse negative meanings, such as that their illness was permanently interfering with their life goals or disrupting their interpersonal relationships, had lower levels of distress. This illustrates that it is not simply having the illness that determines how an individual will adapt, but the individual's perceptions of the implications that the illness has for the person's life as a whole that matters.

Social support also emerged as a factor that contributed significantly to reducing emotional distress, especially support from friends. This is consistent with the results of previous research in this area that has shown social support to be an effective buffer against the emotional impact of a stressful situation (Cohen, 1990).

Age was the only demographic variable that made a difference in adjustment. Results of previous research have been divided on whether older or younger cancer patients experience greater distress. The present study supports the idea that younger
Factors Contributing to Adjustment

patients do indeed experience more distress, possibly because cancer is not something people expect to experience at a younger age. For younger patients, there may be greater potential for disruption to one's life goals and to one's sense of confidence that one will be physically able to continue striving for them.

Subjects who identified any type of threat as being highly applicable to their situation tended to experience greater distress than those who did not identify something important as being greatly at stake. Every single primary appraisal scale was associated with general emotional distress. It is not surprising that individuals would experience more distress if they believed that they might experience significant harm or lose something important to them. Subjects were given the opportunity to write in additional types of primary appraisal threat, and a minority of subjects did so. The most common write-in perception of what was at risk was facing mortality; a number of individuals apparently felt that the item about harm to their own well-being did not capture this concern strongly enough. Some expressed concerns about how family members, children especially, would get along without them. Other individuals indicated that what was at stake in the situation was increased feelings of vulnerability and feeling like they had lost control over what was happening in their lives.

The secondary appraisal that one had to hold back from doing something one wanted to do was the only one that increased distress levels, likely because it indicated that the illness was having a greater negative impact on the individual's usual activities. Most subjects appraised their situation as one they had to accept, and many also endorsed
Factors Contributing to Adjustment

the view that they could in some ways change or do something about their situation. This suggests that perhaps most people felt they had to come to terms with the fact that their illness happened, but that they did not have to accept all aspects of the situation. It may be a healthy balance to, as the saying goes, accept the things that cannot be changed, and attempt to change the things one can.

The impact of negative life events was also an important contributor to emotional distress. Positive life events counteracted this, but not to as powerful a degree. It is not surprising that subjects who had additional stressful circumstances in their lives in addition to their illness tended to have a more difficult time. It should be noted that this measure also takes into account negative life changes that could have resulted from the illness rather than predating it, such as changes in sleep habits, recreational activities, job duties, or financial hardships. This may explain in part why subjects this study in general reported greater amounts of negative than positive life change. Thus, it is likely important not only what life circumstances the patient brings into the illness situation, but how far reaching the effects of the illness itself are on the individual's life.

The results suggest that attributing control over the course of one's illness to chance negatively affects adjustment. It did not matter if one felt that the control lay with one's own actions, or with the actions of others, as long as there was someone in control. This was consistent with some of the results for causal attributions. Believing that one's illness resulted from bad luck was associated with greater distress. It is likely that feeling that the illness is arbitrary and that no one could have done anything about it contributes
Factors Contributing to Adjustment

to greater feelings of uncertainty, discouragement, and feelings of unfairness or "Why me?" However, subjects were no better off if they perceived themselves to be personally responsible in some way for the cause, either because of personality attributes, interpersonal conflicts, difficulties in their lifestyle or environment, or inadequacies in their bodies. There were no causal attributions one could endorse that seemed to help ease levels of emotional distress.

To summarize, subjects tended to report less emotional distress when they relied on coping strategies other than avoidance, distraction, and venting to others about their negative emotions, and when they could reinterpret their illness experience in a more positive and meaningful light. Subjects who felt more was at stake and that the illness was requiring them to hold back from doing things they wanted to do reported more distress. Feeling that what happened with the course of the illness was up to the whims of chance contributed to greater distress, as did blaming bad luck or one's own personality characteristics for the cause of the illness. Finally, subjects with greater perceived social support, especially from friends, and fewer negative life changes, reported less distress.

Factors Contributing to Body Image

The effect of having undergone surgical treatment was significantly related to body image as measured by BIQ scores. An ANOVA was conducted to compare subjects who had undergone no surgery, less radical surgery, more radical surgery, or indicated
Factors Contributing to Adjustment

that they were anticipating having surgery in the future. There were significant
differences between these groups ($F [3,139] = 4.127, \ p=.008$). Post hoc tests indicated
that the subjects who had undergone more radical surgical procedures ($\text{Mean}=34.61,$
$\text{SD}=9.86$) had poorer body image as measured by the BIQ than subjects who had no
surgery at all ($\text{Mean}=40.71, \ SD=7.59$). The subjects who had undergone less radical
surgical procedures had a mean score ($\text{Mean}=35.98, \ SD=9.80$) in between the other two
groups but not significantly different from either. The number of occurrences of cancer
and stage of the illness, both tested using ANOVA, did not significantly affect body
image.

The MHLC scales were entered stepwise into a regression equation to determine
the contribution of locus of control to body image scores (see Table 23). The multiple
correlation was .415, accounting for 17.2% of the variance in BIQ scores ($F$
[2.126]=13.081, $p<.001$). Attribution of more control over the illness to Chance factors
($p<.001$) and the Other people ($p=.045$) were the only significant contributors and were
associated with poorer body image.

When all of the established causal attribution subscales from the LAC plus the
added subscales Self-blame and Genetics were entered into another regression equation
resulted in a multiple correlation of .360, accounting for 13.0% of the variance in body
image scores ($F [1,117] = 17.432, \ p<.001$), with attribution to bad Luck being the only
score significantly contributing ($p=.001$). This attribution was associated with poorer
body image scores. When the alternate set of LAC subscales (Personal responsibility,
Factors Contributing to Adjustment

Table 23
Stepwise Regression Analysis
Variance in Body Image Scores Accounted for by Attributions of Control

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>R²</th>
<th>Change in R²</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance</td>
<td>.15</td>
<td>.15</td>
<td>&lt;.001</td>
<td>-.37</td>
</tr>
<tr>
<td>Other People</td>
<td>.17</td>
<td>.027</td>
<td>.045</td>
<td>-.17</td>
</tr>
</tbody>
</table>

Table 24
Stepwise Regression Analyses
Variance in Body Image Scores Accounted for by Causal Attributions

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>R²</th>
<th>Change in R²</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad Luck (entered with all subscales)</td>
<td>.13</td>
<td>.13</td>
<td>&lt;.001</td>
<td>-.36</td>
</tr>
<tr>
<td>Bad Luck (entered with Personal Responsibility, Genetics and Spiritual)</td>
<td>.13</td>
<td>.13</td>
<td>&lt;.001</td>
<td>-.36</td>
</tr>
</tbody>
</table>

Table 25
Stepwise Regression Analysis
Variance in Body Image Scores Accounted for by Coping Strategies

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>R²</th>
<th>Change in R²</th>
<th>Sig</th>
<th>Beta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Disengagement</td>
<td>.11</td>
<td>.11</td>
<td>&lt;.001</td>
<td>-.30</td>
</tr>
<tr>
<td>Substance Use</td>
<td>.15</td>
<td>.035</td>
<td>.041</td>
<td>-.19</td>
</tr>
</tbody>
</table>

None of the other variables met criteria for entry into the equations reported on this page.

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Factors Contributing to Adjustment

Spiritual, Luck, and Genetics) were entered stepwise into another regression equation, the results were identical, since again, Luck was the only significant individual contributor. See Table 24 for these results.

When all of the COPE scales were entered into a regression equation, the multiple correlation was .515, accounting for 26.5% of the variance in BIQ scores ($F_{[15,92]} = 2.211, p=.011$). Only the coping scales Mental disengagement ($p<.001$) and Substance use ($p=.041$) were significant individual contributors. See Table 25 for these results.

Variables Correlated with Body Image

BIQ scores were significantly correlated with all of the other outcome variables except for the FLIC Nausea scale. Refer back to Table 12 for these correlation coefficients. See Tables 26, 27, and 28 for correlations of BIQ scores with the resource and background variables. More positive body image was significantly associated with higher scores on the Constructed Meaning Scale, with more Social support from friends, with greater length of time since diagnosis, and with greater age. Less positive body Image was associated with a number of attributions, life stresses, coping strategies, and appraisals. The attributions included attributing locus of control over the course of the illness to Chance and Other people, and attributing cause of the illness to bad Luck and Self-blame. The stressors included more negative life change and total life change, as well as less adequate health insurance coverage. The coping strategies used more by individuals with poorer body image were Suppression of competing activities, Mental
Factors Contributing to Adjustment

Table 26
Correlations of Demographic and Illness Variables with Positive Body Image

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Time Since Diagnosis</td>
<td>.23*</td>
</tr>
<tr>
<td>Length of Time in Remission</td>
<td>.08</td>
</tr>
<tr>
<td>Number of Surgeries</td>
<td>-.20*</td>
</tr>
<tr>
<td>Number of Occurrences</td>
<td>.02</td>
</tr>
<tr>
<td>Stage of Illness</td>
<td>.04</td>
</tr>
<tr>
<td>Perception of Prognosis</td>
<td>.07</td>
</tr>
<tr>
<td>Inadequacy of Insurance Coverage</td>
<td>-.22*</td>
</tr>
<tr>
<td>Prior Mental Health History</td>
<td>-.12</td>
</tr>
<tr>
<td>Age</td>
<td>.26**</td>
</tr>
<tr>
<td>Length of Marriage</td>
<td>-.04</td>
</tr>
<tr>
<td>Education</td>
<td>.15</td>
</tr>
<tr>
<td>Income</td>
<td>-.04</td>
</tr>
</tbody>
</table>

* significant at p<.05
** significant at p<.01

Higher scores on the BIQ indicate more positive body image, so positive correlations indicate an association with more positive body image.
Factors Contributing to Adjustment

Table 27
Correlations of Other Variables with Positive Body Image

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS</td>
<td>.38**</td>
</tr>
<tr>
<td>MHL C - Internality</td>
<td>-.07</td>
</tr>
<tr>
<td>MHL C - Chance</td>
<td>-.38**</td>
</tr>
<tr>
<td>MHL C - Doctors</td>
<td>-.04</td>
</tr>
<tr>
<td>MHL C - Other People</td>
<td>-.19*</td>
</tr>
<tr>
<td>Social Support Friends</td>
<td>.26**</td>
</tr>
<tr>
<td>Social Support Family</td>
<td>.16</td>
</tr>
<tr>
<td>Positive Life Change</td>
<td>.10</td>
</tr>
<tr>
<td>Negative Life Change</td>
<td>-.28**</td>
</tr>
<tr>
<td>Total Life Change</td>
<td>-.18*</td>
</tr>
<tr>
<td>LAC - Bad Luck</td>
<td>-.38**</td>
</tr>
<tr>
<td>LAC - Self-blame</td>
<td>-.20*</td>
</tr>
<tr>
<td>LAC - Unpleasant Environment</td>
<td>-.01</td>
</tr>
<tr>
<td>LAC - Spiritual Determinism</td>
<td>-.08</td>
</tr>
<tr>
<td>LAC - Intrapersonal Conflicts</td>
<td>-.12</td>
</tr>
<tr>
<td>LAC - Chosen Lifestyle</td>
<td>-.16</td>
</tr>
<tr>
<td>LAC - Biological Inadequacies</td>
<td>-.17</td>
</tr>
<tr>
<td>LAC - Genetics</td>
<td>-.01</td>
</tr>
<tr>
<td>LAC - Personal Responsibility</td>
<td>-.15</td>
</tr>
<tr>
<td>Threat to Self-esteem</td>
<td>-.41**</td>
</tr>
<tr>
<td>Threat to Femininity</td>
<td>-.58**</td>
</tr>
<tr>
<td>Threat of Harm to Loved One</td>
<td>-.15</td>
</tr>
<tr>
<td>Threat to Own Health and Well-being</td>
<td>-.25**</td>
</tr>
<tr>
<td>Threat to Achieving Goal at Work</td>
<td>-.19*</td>
</tr>
<tr>
<td>Threat of Strain on Finances</td>
<td>-.14</td>
</tr>
<tr>
<td>Threat of Losing Respect for Someone</td>
<td>-.15</td>
</tr>
<tr>
<td>Threat to Sex Life</td>
<td>-.38**</td>
</tr>
<tr>
<td>Threat to Fertility</td>
<td>-.30**</td>
</tr>
<tr>
<td>Secondary Appraisal - Change or Do Something</td>
<td>.04</td>
</tr>
<tr>
<td>Secondary Appraisal - Accept</td>
<td>-.13</td>
</tr>
<tr>
<td>Secondary Appraisal - Hold Back</td>
<td>-.16</td>
</tr>
<tr>
<td>Secondary Appraisal - Know More Before Acting</td>
<td>.02</td>
</tr>
</tbody>
</table>

* significant at p<.05
** significant at p<.01

Higher scores on the BIQ indicate more positive body image, so positive correlations indicate an association with more positive body image.
Factors Contributing to Adjustment

Table 28
Correlations of Coping Scales with Positive Body Image

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppression of Competing Activities</td>
<td>-.19*</td>
</tr>
<tr>
<td>Mental Disengagement</td>
<td>-.34**</td>
</tr>
<tr>
<td>Behavioral Disengagement</td>
<td>-.22*</td>
</tr>
<tr>
<td>Venting</td>
<td>-.25**</td>
</tr>
<tr>
<td>Substance Use</td>
<td>-.25**</td>
</tr>
<tr>
<td>Positive Reinterpretation and Growth</td>
<td>.09</td>
</tr>
<tr>
<td>Active</td>
<td>.02</td>
</tr>
<tr>
<td>Planning</td>
<td>.03</td>
</tr>
<tr>
<td>Seeking Social Support for Emotional Reasons</td>
<td>.10</td>
</tr>
<tr>
<td>Seeking Social Support for Instrumental Reasons</td>
<td>-.04</td>
</tr>
<tr>
<td>Turning to Religion</td>
<td>.03</td>
</tr>
<tr>
<td>Acceptance</td>
<td>.04</td>
</tr>
<tr>
<td>Denial</td>
<td>-.17</td>
</tr>
<tr>
<td>Restraint</td>
<td>-.15</td>
</tr>
<tr>
<td>Humor</td>
<td>-.07</td>
</tr>
</tbody>
</table>

* significant at p<.05  
** significant at p<.01

Higher scores on the BIQ indicate more positive body image, so positive correlations indicate an association with more positive body image.

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Factors Contributing to Adjustment

disengagement, Behavioral disengagement, Venting, and Substance use. The appraisals associated with poorer body image were perceived threats to Self-esteem, Femininity, Own health and well-being, Achieving a work-related goal, Sex life, and Fertility.

Discussion of Body Image Results

Contrary to the results of some previous studies, type of cancer alone was not a significant risk factor for disruptions of body image. One factor that did make a difference was the extent of the surgery performed, consistent with results of other studies suggesting that, for example, lumpectomy patients fare better in this area than mastectomy patients. Attributions of cause and control seemed to make a difference as well. Subjects tended to perceive their body in more negative terms when they believed that their illness was caused by bad luck and under the unpredictable control of chance. Most of the primary appraisal threats also correlated significantly with body image scores. One could speculate that the reason for this is that one might perceive one's body more negatively when its workings are threatening something important in one's life.

Body image was significantly associated with emotional distress and most of the other outcome measures, as well as with some of the variables that contributed significantly to distress and adjustment. These included social support from friends, negative life change, certain coping strategies, and age. It is possible that either body image perceptions can vary dependent on the person's general feelings of well-being, or
Factors Contributing to Adjustment

that negative body image can be one of the things that itself contributes to greater degrees of general emotional distress.

Factors Contributing to the Other Adjustment Measures

The contribution of coping strategies to outcome was given special attention since in the previous analyses it appeared to be an important factor accounting for a large amount of the variance in the other adjustment measures. All the coping scales were entered into regression equations to examine which coping strategies predicted outcome on the different adjustment measures. The contribution of the other variables to these other adjustment measures was examined simply by looking at the pattern of correlations.

The adjustment measures examined below include the PAIS-SR Total score, a general indicator of adjustment across a range of different life domains. Each of the PAIS-SR subscales are examined individually as well, with the exception of PAIS-VII Psychological distress, since this is included in the combined distress measure which has already been discussed. All of the FLIC subscales, with the exception of Psychological Well-being (included in the combined distress measure), are also discussed individually.

PAIS-SR Total Score

Correlations of the other variables with the PAIS-SR Total score are presented in Tables 29, 30, and 31. Entering all the coping strategy scales into a regression equation
Factors Contributing to Adjustment

Table 29
Correlations of Coping Scales with PAIS-SR Total Score

<table>
<thead>
<tr>
<th>Coping Strategy</th>
<th>PAIS-SR Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPE - Acceptance</td>
<td>-.08</td>
</tr>
<tr>
<td>COPE - Active Coping</td>
<td>-.09</td>
</tr>
<tr>
<td>COPE - Behavioral Disengagement</td>
<td>.43**</td>
</tr>
<tr>
<td>COPE - Denial</td>
<td>.09</td>
</tr>
<tr>
<td>COPE - Humor</td>
<td>-.06</td>
</tr>
<tr>
<td>COPE - Mental Disengagement</td>
<td>.41**</td>
</tr>
<tr>
<td>COPE - Planning</td>
<td>.04</td>
</tr>
<tr>
<td>COPE - Positive Reinterpretation and Growth</td>
<td>-.07</td>
</tr>
<tr>
<td>COPE - Restraint</td>
<td>.09</td>
</tr>
<tr>
<td>COPE - Seeking Social Support for Emotional Reasons</td>
<td>-.13</td>
</tr>
<tr>
<td>COPE - Seeking Social Support for Instrumental Reasons</td>
<td>.01</td>
</tr>
<tr>
<td>COPE - Substance Use</td>
<td>.21*</td>
</tr>
<tr>
<td>COPE - Suppression of Competing Activities</td>
<td>.23*</td>
</tr>
<tr>
<td>COPE - Turning to Religion</td>
<td>.03</td>
</tr>
<tr>
<td>COPE - Venting</td>
<td>.39**</td>
</tr>
</tbody>
</table>

* significant at p<.05 (2-tailed)
** significant at p<.01 (2-tailed)

Note that higher scores on the PAIS-SR Total Score indicates poorer adjustment, and higher scores on the COPE scales indicate greater use of that coping strategy. Thus positive correlations indicate an association with poorer adjustment, while negative correlations indicate that use of that strategy is associated with better adjustment.
Factors Contributing to Adjustment

with PAIS-SR Total score as the dependent variable, the multiple correlation was .695, accounting for 48.3% of the variance ($F_{15,86} = 5.351, p < .001$). The significant contributors were Seeking social support for emotional reasons ($p = .023$), which was associated with better adjustment, and Venting ($p < .001$), Mental disengagement ($p = .012$), and Behavioral disengagement ($p = .028$), which were all associated with poorer adjustment. Two additional coping scales correlated significantly with the PAIS-SR Total score, although they were not significant individual contributors to the regression equation. These were Substance use and Suppression of competing activities, both of which were associated with poorer adjustment. Higher Constructed Meaning Scale (CMS) scores were also correlated significantly with better adjustment as measured by the PAIS-SR Total score.

Poorer adjustment on the PAIS-SR Total was significantly correlated with causal attributions to bad Luck, Lifestyle, Biological Inadequacies, Self-blame, and Personal responsibility. As previously described, the Personal responsibility scale includes the items from all of the other LAC subscales except for Luck, Spiritual determinism, and Genetics. Poorer PAIS-SR Total scores were significantly correlated with attributing more of the control over the illness to Chance, but not with the other MHLC scales.

Poorer adjustment as measured by the PAIS-SR Total score was significantly correlated with perceptions of greater threat on all of the primary appraisal measures except for threat to Own health and well-being, one of the most highly endorsed items in
Factors Contributing to Adjustment

Table 30
Correlations of Other Variables with PAIS-SR Total Score

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS</td>
<td>-.47**</td>
</tr>
<tr>
<td>Social Support – Friends</td>
<td>-.33**</td>
</tr>
<tr>
<td>Social Support – Family</td>
<td>-.25**</td>
</tr>
<tr>
<td>Positive Life Change</td>
<td>-.20*</td>
</tr>
<tr>
<td>Negative Life Change</td>
<td>.39**</td>
</tr>
<tr>
<td>Total Life Change</td>
<td>.22*</td>
</tr>
<tr>
<td>MHLC – Internality</td>
<td>.08</td>
</tr>
<tr>
<td>MHLC – Chance</td>
<td>.22*</td>
</tr>
<tr>
<td>MHLC – Doctors</td>
<td>.02</td>
</tr>
<tr>
<td>MHLC – Other People</td>
<td>.17</td>
</tr>
<tr>
<td>LAC – Personal Responsibility</td>
<td>.28**</td>
</tr>
<tr>
<td>LAC – Luck</td>
<td>.28**</td>
</tr>
<tr>
<td>LAC – Lifestyle Factors</td>
<td>.21*</td>
</tr>
<tr>
<td>LAC – Biological Inadequacies</td>
<td>.23*</td>
</tr>
<tr>
<td>LAC – Self-blame</td>
<td>.30**</td>
</tr>
<tr>
<td>LAC – Genetics</td>
<td>.24**</td>
</tr>
<tr>
<td>LAC – Spiritual Determinism</td>
<td>.14</td>
</tr>
<tr>
<td>LAC – Interpersonal Conflicts</td>
<td>.30**</td>
</tr>
<tr>
<td>LAC – Intrapersonal Conflicts</td>
<td>.09</td>
</tr>
<tr>
<td>LAC – Unpleasant Environment</td>
<td>.16</td>
</tr>
<tr>
<td>Threat to Self-esteem</td>
<td>.49**</td>
</tr>
<tr>
<td>Threat to Loved One’s Well-being</td>
<td>.22*</td>
</tr>
<tr>
<td>Threat to Femininity</td>
<td>.38**</td>
</tr>
<tr>
<td>Threat to Own Health and Well-being</td>
<td>.17</td>
</tr>
<tr>
<td>Threat to Achieving Goal at Work</td>
<td>.31**</td>
</tr>
<tr>
<td>Threat to Finances</td>
<td>.29**</td>
</tr>
<tr>
<td>Threat of Losing Respect for Someone</td>
<td>.29**</td>
</tr>
<tr>
<td>Threat to Sex Life</td>
<td>.52**</td>
</tr>
<tr>
<td>Threat to Fertility</td>
<td>.36**</td>
</tr>
<tr>
<td>Secondary Appraisal – Change or Do</td>
<td>.01</td>
</tr>
<tr>
<td>Something</td>
<td></td>
</tr>
<tr>
<td>Secondary Appraisal – Accept</td>
<td>.07</td>
</tr>
<tr>
<td>Secondary Appraisal Know More Before</td>
<td>-.09</td>
</tr>
<tr>
<td>Acting</td>
<td></td>
</tr>
<tr>
<td>Secondary Appraisal – Hold Back</td>
<td>.41**</td>
</tr>
</tbody>
</table>
Factors Contributing to Adjustment

Table 31
Correlations of Demographic and Illness Characteristics with PAIS-SR Total Score

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequacy of Insurance Coverage</td>
<td>.26**</td>
</tr>
<tr>
<td>Age</td>
<td>-.23*</td>
</tr>
<tr>
<td>Length of Marriage</td>
<td>-.25*</td>
</tr>
<tr>
<td>Stage of Illness</td>
<td>.24*</td>
</tr>
<tr>
<td>Education Level</td>
<td>-.15</td>
</tr>
<tr>
<td>Income</td>
<td>.04</td>
</tr>
<tr>
<td>Prior Mental Health History</td>
<td>.12</td>
</tr>
<tr>
<td>Time Since Diagnosis</td>
<td>.003</td>
</tr>
<tr>
<td>Time in Remission</td>
<td>-.08</td>
</tr>
<tr>
<td>Number of Occurrences</td>
<td>.02</td>
</tr>
<tr>
<td>Perception of Prognosis</td>
<td>.13</td>
</tr>
</tbody>
</table>

Note that higher scores on the PAIS-SR indicate poorer adjustment, thus positive correlations indicate an association with poorer adjustment.

* significant at p<.05       ** significant at p<.01
Factors Contributing to Adjustment

the sample as a whole. None of the secondary appraisals correlated significantly with PAIS-SR Total score.

Better adjustment was significantly associated with more social support from friends and from family, with more positive life events and fewer negative and total life events, and with better health insurance coverage.

Older subjects in longer marriages tended to have significantly better adjustment scores on the PAIS-SR Total. Subjects with more advanced stages of illness tended to score more poorly on this measure. None of the correlations with the other demographic or description of illness variables were significant.

PAIS - I: Health Care Orientation

This scale measures the individual's attitude towards health care personnel, vigilance in self-care, and quality of information received about the illness and its treatment. See Table 32 for the correlations of the coping strategy scales with all the PAIS-SR subscales.

Entering all the coping strategy scales into a regression equation with PAIS-I as the dependent variable, the multiple correlation was .560, accounting for 31.4% of the variance ($F_{[15,91]} = 2.773, p=.001$). Significant individual contributors were Active coping ($p=.006$), associated with better PAIS-I scores. Seeking Social support for emotional reasons, ($p=.027$), was also associated with better scores. Seeking Social support for instrumental reasons was associated with poorer scores ($p=.005$), as was
Factors Contributing to Adjustment

Table 32
Correlations of Coping Scales with PAIS-SR Subscales

<table>
<thead>
<tr>
<th></th>
<th>PAIS I</th>
<th>PAIS II</th>
<th>PAIS III</th>
<th>PAIS IV</th>
<th>PAIS V</th>
<th>PAIS VI</th>
<th>PAIS VII</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPE - Acceptance</td>
<td>-.21*</td>
<td>.02</td>
<td>.04</td>
<td>-.004</td>
<td>.03</td>
<td>-.11</td>
<td>-.10</td>
</tr>
<tr>
<td>COPE - Active Coping</td>
<td>-.25**</td>
<td>.11</td>
<td>-.02</td>
<td>-.01</td>
<td>.08</td>
<td>-.17</td>
<td>-.04</td>
</tr>
<tr>
<td>COPE - Behavioral Disengagement</td>
<td>.22*</td>
<td>.20*</td>
<td>.39**</td>
<td>.13</td>
<td>.25**</td>
<td>.35**</td>
<td>.35**</td>
</tr>
<tr>
<td>COPE - Denial</td>
<td>.13</td>
<td>-.07</td>
<td>.11</td>
<td>-.01</td>
<td>.10</td>
<td>-.04</td>
<td>.09</td>
</tr>
<tr>
<td>COPE - Humor</td>
<td>-.10</td>
<td>-.04</td>
<td>.03</td>
<td>.07</td>
<td>-.02</td>
<td>-.13</td>
<td>.01</td>
</tr>
<tr>
<td>COPE - Mental Disengagement</td>
<td>.11</td>
<td>.30**</td>
<td>.32**</td>
<td>.26**</td>
<td>.19*</td>
<td>.35**</td>
<td>.30**</td>
</tr>
<tr>
<td>COPE - Planning</td>
<td>-.07</td>
<td>.24**</td>
<td>.07</td>
<td>.10</td>
<td>-.08</td>
<td>-.10</td>
<td>.02</td>
</tr>
<tr>
<td>COPE - Positive Reinterpretation and Growth</td>
<td>-.06</td>
<td>.04</td>
<td>-.003</td>
<td>.05</td>
<td>-.06</td>
<td>-.12</td>
<td>-.10</td>
</tr>
<tr>
<td>COPE - Restraint</td>
<td>.04</td>
<td>.02</td>
<td>.08</td>
<td>.04</td>
<td>.06</td>
<td>.08</td>
<td>.11</td>
</tr>
<tr>
<td>COPE - Seeking Social Support for Emotional Reasons</td>
<td>-.23**</td>
<td>.08</td>
<td>-.21*</td>
<td>.05</td>
<td>-.09</td>
<td>.06</td>
<td>-.08</td>
</tr>
<tr>
<td>COPE - Seeking Social Support for Instrumental Reasons</td>
<td>.04</td>
<td>.09</td>
<td>.02</td>
<td>.07</td>
<td>-.04</td>
<td>-.18</td>
<td>.09</td>
</tr>
<tr>
<td>COPE - Substance Use</td>
<td>.03</td>
<td>.03</td>
<td>.01</td>
<td>.07</td>
<td>.25**</td>
<td>.15</td>
<td>.40**</td>
</tr>
<tr>
<td>COPE - Suppression of Competing Activities</td>
<td>-.01</td>
<td>.29**</td>
<td>.09</td>
<td>.17</td>
<td>.05</td>
<td>.14</td>
<td>.25**</td>
</tr>
<tr>
<td>COPE - Turning to Religion</td>
<td>.04</td>
<td>.03</td>
<td>.08</td>
<td>.07</td>
<td>-.05</td>
<td>.09</td>
<td>-.09</td>
</tr>
<tr>
<td>COPE - Venting</td>
<td>.15</td>
<td>.20*</td>
<td>.20*</td>
<td>.26**</td>
<td>.24**</td>
<td>.18*</td>
<td>.53**</td>
</tr>
</tbody>
</table>

* significant at p<.05 (2-tailed)
** significant at p<.01 (2-tailed)

Note that higher scores on PAIS-SR subscales indicate poorer adjustment, and higher scores on the COPE scales indicate greater use of that coping strategy. Thus positive correlations indicate an association with poorer adjustment, while negative correlations indicate that use of that strategy is associated with better adjustment.

PAIS-I = Health Care Orientation; PAIS-II = Vocational Environment; PAIS-III = Domestic Environment
PAIS-IV = Sexual Adjustment; PAIS-V = Extended Family Adjustment; PAIS-VI = Social Environment
PAIS-VII = Psychological Distress

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Factors Contributing to Adjustment

Venting ($p=.002$). While it did not emerge as a significant contributor in the regression equation, Behavioral disengagement correlated significantly with PAIS-I scores as well, with more use of this strategy being associated with poorer adjustment on this measure. The other coping scales were not significantly correlated with PAIS-I scores.

Correlations of the other variables with the PAIS-SR subscales are presented in Table 33. Higher scores on the Constructed Meaning Scale were significantly correlated with better scores on PAIS-I, as were more social support from friends and family, and more positive life change. Negative life change and total life change were not significantly correlated with PAIS-I.

More positive Health Care Orientation was significantly correlated with causal attributions to Personal responsibility, and to some of the subscales subsumed under it, including Lifestyle, Biological inadequacies, and Self-blame. PAIS-I scores were not significantly correlated with the other causal attributions, or with any of the MHLC scales measuring locus of control over illness course.

Greater perceived threat to Self-esteem and threatened changes to Sex life were significantly correlated with poorer PAIS-I scores. Appraising the situation as one requiring the person to Hold back from doing something was also associated with poorer PAIS-I scores. None of the other primary or secondary appraisals were significantly correlated with PAIS-I.

Older age and longer time in remission were significantly associated with better PAIS-I scores. None of the correlations with the other demographic or illness variables
Factors Contributing to Adjustment

### Table 33
Correlations of Other Variables with PAIS-SR Subscales

<table>
<thead>
<tr>
<th></th>
<th>PAIS I</th>
<th>PAIS II</th>
<th>PAIS III</th>
<th>PAIS IV</th>
<th>PAIS V</th>
<th>PAIS VI</th>
<th>PAIS VII</th>
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</thead>
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<tr>
<td>CMS</td>
<td>-.33**</td>
<td>-.32**</td>
<td>-.32**</td>
<td>-.21*</td>
<td>-.23*</td>
<td>-.23*</td>
<td>-.44**</td>
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<td>Social Support – Family</td>
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<td>.08</td>
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<td>-.17</td>
<td>-.26**</td>
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<td>Positive Life Change</td>
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<td>-.23**</td>
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<td>Total Life Change</td>
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<td>LAC – Bad Luck</td>
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<td>LAC – Genetics</td>
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<td>LAC – Spiritual Determinism</td>
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<td>LAC – Self-blame</td>
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<td>LAC – Intrapersonal Conflicts</td>
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<td>LAC – Lifestyle Factors</td>
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<td>.08</td>
<td>.23**</td>
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<td>LAC – Biological Inadequacies</td>
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<td>LAC – Unpleasant Environment</td>
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<td>Threat to Self-esteem</td>
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<td>Threat to Loved One’s Well-being</td>
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<tr>
<td>Threat to Femininity</td>
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<td>-.001</td>
<td>.10</td>
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<td>Threat to Goal at Work</td>
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<tr>
<td>Threat to Finances</td>
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<td>.39**</td>
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<td>.30**</td>
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<td>Threat of Losing Respect for Someone</td>
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<td>Threat to Sex Life</td>
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<td>.18*</td>
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<td>.31**</td>
<td>.30**</td>
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<td>Secondary Appraisal: Change or Do Something</td>
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<td>-.01</td>
<td>.01</td>
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<td>-.01</td>
<td>.03</td>
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<td>Secondary Appraisal: Accept</td>
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<td>.02</td>
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<td>Secondary Appraisal: Know More Before Acting</td>
<td>.003</td>
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<td>Secondary Appraisal: Hold Back</td>
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<td>.34**</td>
<td>.12</td>
<td>.12</td>
<td>.34**</td>
<td>.24**</td>
</tr>
</tbody>
</table>

* significant at p<.05 (2-tailed)  ** significant at p<.01 (2-tailed)

Note that higher scores on PAIS-SR subscales indicate poorer adjustment, and higher scores on the other scales indicate greater endorsement of that perception. Thus positive correlations indicate an association with poorer adjustment, while negative correlations indicate an association with better adjustment.


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Factors Contributing to Adjustment

were significant. See Table 34 for the correlations of the demographic and illness variables with all the PAIS-SR subscales.

PAIS – II: Vocational Environment

When all the coping strategy scales were entered into a regression equation predicting PAIS-II scores, the multiple correlation was .506, accounting for 25.6% of the variance ($F_{[15,86]} = 1.974$, $p=.026$). The only significant individual contributor was Planning ($p=.034$), which was associated with poorer vocational adjustment scores. In spite of this, several additional coping scales correlated significantly with PAIS-II scores. These were Suppression of competing activities, Mental disengagement, Behavioral disengagement, and Venting, all associated with poorer vocational adjustment. CMS scores were correlated with better vocational adjustment as well.

Poorer vocational adjustment was significantly correlated with greater amounts of Negative life change and Total life change, as well as with less adequate health insurance coverage. Perceived social support was not significantly related to vocational adjustment.

The only attributions that significantly correlated with poorer vocational adjustment were attributions of cause to Interpersonal conflicts and attributions of control to Other people.

Perception of greater threat on most of the primary appraisals correlated significantly with poorer vocational adjustment. The only secondary appraisal that was significantly associated with vocational adjustment was Hold back.
Factors Contributing to Adjustment

Table 34
Correlations of Demographic and Illness Variables with PAIS-SR Subscales

<table>
<thead>
<tr>
<th></th>
<th>PAIS I</th>
<th>PAIS II</th>
<th>PAIS III</th>
<th>PAIS IV</th>
<th>PAIS V</th>
<th>PAIS VI</th>
<th>PAIS VII</th>
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<td>Age</td>
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<td>-.01</td>
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<td>.26**</td>
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<td>-.02</td>
<td>.09</td>
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<td>Length of Marriage</td>
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<td>-.25*</td>
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<td>.01</td>
<td>.07</td>
<td>.02</td>
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<td>Time Since Diagnosis</td>
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<td>.01</td>
<td>-.06</td>
<td>-.09</td>
<td>-.13</td>
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<td>Time in Remission</td>
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<td>.04</td>
<td>.04</td>
<td>-.02</td>
<td>-.09</td>
<td>-.13</td>
</tr>
<tr>
<td>Number of Occurrences</td>
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<td>.01</td>
<td>.02</td>
<td>.10</td>
<td>.04</td>
<td>-.05</td>
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<tr>
<td>Stage of Illness</td>
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<td>.32**</td>
<td>-.10</td>
<td>.11</td>
<td>.05</td>
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<tr>
<td>Perception of Prognosis</td>
<td>.16</td>
<td>.11</td>
<td>.16</td>
<td>.02</td>
<td>-.03</td>
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<td>.07</td>
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<tr>
<td>Insurance Coverage</td>
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<td>.27*</td>
<td>.04</td>
<td>.26**</td>
<td>.11</td>
<td>.22*</td>
</tr>
</tbody>
</table>

* significant at p<.05 (2-tailed)
** significant at p<.01 (2-tailed)

Note that higher scores on PAIS-SR subscales indicate poorer adjustment. Thus positive correlations indicate an association with poorer adjustment, while negative correlations indicate an association with better adjustment. Prior Mental Health History, Perception of Prognosis, and Insurance Coverage are all rated so that higher scores are worse than lower scores.
Factors Contributing to Adjustment

Similar to the results for the PAIS-SR Total, older age, greater length of marriage, and less advanced stage of illness were the only demographic and illness variables associated with better vocational adjustment.

PAIS - III: Domestic Environment

When all the coping strategy scales were entered into a regression equation predicting PAIS-III scores, the multiple correlation was .617, accounting for 38.0% of the variance ($F_{[15,91]} = 3.721, p<.001$). The significant individual contributors were Seeking social support for emotional reasons ($p=.004$), associated with better adjustment, and Venting ($p=.003$), Mental disengagement ($p=.011$), and Behavioral disengagement ($p=.022$), all associated with poorer adjustment.

Higher CMS scores were significantly correlated with better adjustment, as were more social support from friends and family, more positive life change. Greater amounts of negative life change and total change were associated with poorer adjustment on this measure. Insurance coverage adequacy was also significantly correlated with adjustment.

Greater causal attributions to Personal responsibility, Interpersonal conflicts, Lifestyle, Self-blame, and Genetics were associated with poorer adjustment. None of the attributions of control correlated significantly with PAIS-III scores.

Higher scores on most of the primary appraisal threats and the secondary appraisal Hold back correlated significantly with poorer adjustment on PAIS-III.
Factors Contributing to Adjustment

More years of education and higher income were associated with better Domestic adjustment as measured by PAIS-III scores. More advanced stage of illness was significantly associated with poorer adjustment. None of the other demographic and illness related variables correlated significantly with PAIS-III scores.

PAIS-IV: Sexual Adjustment

When all the coping strategy scales were entered into a regression equation predicting PAIS-IV scores, the multiple correlation was $R=.402$, accounting for 16.2% of the variance ($F [15,91] = 1.169, p=.310$). Venting was the only significant contributor ($p=.045$), more use of this was associated with poorer adjustment. Use of Mental disengagement was also significantly correlated with poorer sexual adjustment, although it did not emerge as a significant individual contributor in the regression equation.

Better Sexual adjustment was correlated significantly with higher CMS scores, fewer negative life events and total life events, and attributing less control over their illness to Chance. It was not significantly associated with either social support measure or any of the causal attributions.

Primary appraisals of greater threat to Self-esteem, harm to Loved one, Femininity, changes in Sex life, and Fertility were significantly correlated with poorer Sexual adjustment. None of the secondary appraisals were related to Sexual adjustment.
Factors Contributing to Adjustment

The only demographic and illness related variables associated significantly with better Sexual adjustment were more years of education, lower income, and less advanced stage of illness.

PAIS-V: Extended Family Adjustment

When all the coping strategy scales were entered into a regression equation with PAIS-V scores as the dependent variable, the multiple correlation was .443, accounting for 19.6% of the variance ($F_{[15,91]} = 1.482, p=.128$). Significant contributors were Active coping ($p=.05$) and Venting (.240, $p=.039$), more use of both of these was associated with poorer adjustment. Additional coping strategy scales that correlated significantly with PAIS-V scores but did not emerge as contributors to the regression equation were Mental disengagement, Behavioral disengagement, and Substance use, all associated with poorer Extended family adjustment.

Higher CMS scores were associated with better adjustment. Not surprisingly, perceptions of greater social support from both family and friends were associated with better Extended family adjustment. Causal attributions to Interpersonal conflicts and to Luck were associated with poorer adjustment in this domain. None of the attributions of locus of control or any of the life events scales were significantly related to PAIS-V scores. Less adequate insurance coverage, however, was significantly correlated.

Endorsing several primary appraisals to a greater degree was associated with poorer adjustment, including threat to Self-esteem, Femininity, Losing respect for
Factors Contributing to Adjustment

someone, changes to Sex life, and Fertility. None of the secondary appraisal items correlated significantly with PAIS-V scores.

Subjects who had been married for longer periods of time tended to report better adjustment in this domain. None of the other demographic or illness related variables correlated significantly with Extended family adjustment.

PAIS-VI: Social Environment

This subscale measures subjects' interest and participation in various types of social and leisure activities. When all the coping strategy scales were entered into a regression equation with PAIS-VI scores as the dependent variable, the multiple correlation was .584, accounting for 34.1% of the variance ($F[15,91] = 3.135$, $p<.001$). Turning to religion ($p=.04$) and Mental disengagement ($p=.008$) were the significant contributors, more use of these strategies was associated with poorer scores on this subscale. Additional coping strategies that correlated significantly were use of Behavioral disengagement and Venting, both associated with poorer adjustment, and Seeking social support for instrumental reasons, which was associated with better adjustment.

Better scores on PAIS-VI were also significantly correlated with higher CMS scores, more perceived social support from friends, more positive and fewer negative life events, and longer marriage. Worse adjustment in this domain was associated with
Factors Contributing to Adjustment

higher scores for many of the causal attributions and primary appraisal threats, as well as with the secondary appraisal of Hold back.

**FLIC Physical Well-being**

When the coping strategy scales were entered into a regression equation with Physical well-being as the dependent variable, the multiple correlation was .564, accounting for 31.8% of the variance ($F_{[15,92]} = 2.857, p = .001$). Significant contributors were Positive reinterpretation/ growth ($p = .023$), which was associated with feeling better physically, and use of Venting ($p = .018$) and Behavioral disengagement ($p = .046$), which were associated with feeling worse. Additional coping strategies that correlated significantly with this measure but were not significant individual contributors to the regression equation were Suppression of competing activities and Mental disengagement, both associated with feeling worse physically. See Table 35 for the correlation coefficients of the coping scales with the FLIC scales.

See Tables 36 and 37 for correlations of the FLIC scales with the other variables. Better Physical well-being correlated significantly with higher CMS scores, more positive life events and fewer negative life events, and less advanced stage of illness. Attributing locus of control to Other people was correlated with worse scores on Physical well-being. Social support and causal attributions were not significantly correlated with Physical well-being. Worse scores on Physical well-being were correlated with greater appraisals
Factors Contributing to Adjustment

Table 35
Correlations of the Coping Subscales with the FLIC Subscales

<table>
<thead>
<tr>
<th></th>
<th>Physical Well-being</th>
<th>Hardship</th>
<th>Social Well-being</th>
<th>Nausea</th>
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<tbody>
<tr>
<td>Positive Reinterpretation and Growth</td>
<td>.12</td>
<td>.02</td>
<td>.15</td>
<td>-.09</td>
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<tr>
<td>Active Coping</td>
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<td>Planning</td>
<td>-.09</td>
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<td>.11</td>
<td>-.13</td>
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<tr>
<td>Seeking Social Support – Emotional</td>
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<td>.19*</td>
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<tr>
<td>Seeking Social Support – Instrumental</td>
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<td>-.13</td>
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<tr>
<td>Suppression of Competing Activities</td>
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<td>-.17</td>
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<tr>
<td>Turning to Religion</td>
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<tr>
<td>Acceptance</td>
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<td>-.18*</td>
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<tr>
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<td>-.35**</td>
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<td>Behavioral Disengagement</td>
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<td>Denial</td>
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<td>Substance Use</td>
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<tr>
<td>Humor</td>
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<td>-.004</td>
<td>-.02</td>
<td>-.07</td>
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</table>

Note that higher scores on the FLIC subscales indicate better adjustment, thus positive correlations indicate an association with better adjustment.

* significant at p<.05
** significant at p<.01

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Factors Contributing to Adjustment

of threat to Self-esteem, Achieving a goal at work, strain on Finances, and changes to Sex life, as well as with the secondary appraisal Hold back.

FLIC Hardship

When the coping strategy scales were entered into a regression equation with FLIC Hardship as the dependent variable, the multiple correlation was .629, accounting for 39.5% of the variance ($F[15,92] = 4.005, p<.001$). Significant contributors were Acceptance ($p=.001$), which was associated with reporting less hardship, and more use of Suppression of competing activities ($p=.032$) and Venting ($p=.002$) which were associated with greater perceptions of hardship. Additional coping scales that correlated significantly with reported Hardship were Mental disengagement, Venting, and Substance use, all associated with greater reported Hardship. Higher CMS scores correlated with less Hardship.

Causal attribution to bad Luck was significantly correlated with greater perception of Hardship, as were attributions of locus of control to Internality and Other people.

Greater reported threats to Self-esteem, harm to Loved one, Femininity, Sex life, and Fertility correlated significantly with greater perceptions of Hardship. Endorsement of the secondary appraisal that the situation is one that has to be accepted was correlated with less Hardship, while endorsing the secondary appraisal Hold back correlated with perception of greater Hardship.
### Table 36
Correlations of Other Variables with FLIC Subscales

<table>
<thead>
<tr>
<th></th>
<th>Physical Well-being</th>
<th>Hardship</th>
<th>Social Well-being</th>
<th>Nausea</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMS</td>
<td>.39**</td>
<td>38**</td>
<td>.29**</td>
<td>-.03</td>
</tr>
<tr>
<td>Social Support – Friends</td>
<td>.15</td>
<td>.03</td>
<td>.37**</td>
<td>.13</td>
</tr>
<tr>
<td>Social Support – Family</td>
<td>.12</td>
<td>.09</td>
<td>.38**</td>
<td>.10</td>
</tr>
<tr>
<td>Positive Life Change</td>
<td>.24**</td>
<td>.16</td>
<td>.21*</td>
<td>.18*</td>
</tr>
<tr>
<td>Negative Life Change</td>
<td>-.29**</td>
<td>-.10</td>
<td>-.19*</td>
<td>.07</td>
</tr>
<tr>
<td>Total Life Change</td>
<td>-.11</td>
<td>-.001</td>
<td>-.04</td>
<td>.15</td>
</tr>
<tr>
<td>MHLC – Internality</td>
<td>-.10</td>
<td>-.19*</td>
<td>-.12</td>
<td>-.24**</td>
</tr>
<tr>
<td>MHLC – Chance</td>
<td>-.07</td>
<td>-.11</td>
<td>-.15</td>
<td>.12</td>
</tr>
<tr>
<td>MHLC – Doctors</td>
<td>-.04</td>
<td>.02</td>
<td>-.02</td>
<td>.09</td>
</tr>
<tr>
<td>MHLC – Other People</td>
<td>-.28**</td>
<td>-.27**</td>
<td>-.12</td>
<td>-.30**</td>
</tr>
<tr>
<td>LAC – Personal Responsibility</td>
<td>-.13</td>
<td>-.13</td>
<td>.28**</td>
<td>.10</td>
</tr>
<tr>
<td>LAC – Bad Luck</td>
<td>-.14</td>
<td>-.23**</td>
<td>-.28**</td>
<td>.003</td>
</tr>
<tr>
<td>LAC – Genetics</td>
<td>-.08</td>
<td>-.04</td>
<td>-.20*</td>
<td>.11</td>
</tr>
<tr>
<td>LAC – Spiritual Determinism</td>
<td>.02</td>
<td>-.03</td>
<td>-.17</td>
<td>-.03</td>
</tr>
<tr>
<td>LAC – Unpleasant Environment</td>
<td>-.17</td>
<td>-.06</td>
<td>-.23**</td>
<td>.05</td>
</tr>
<tr>
<td>LAC – Interpersonal Conflicts</td>
<td>-.13</td>
<td>-.08</td>
<td>-.30**</td>
<td>.07</td>
</tr>
<tr>
<td>LAC – Intrapersonal Conflicts</td>
<td>-.09</td>
<td>-.12</td>
<td>-.18*</td>
<td>.10</td>
</tr>
<tr>
<td>LAC – Lifestyle Factors</td>
<td>-.15</td>
<td>-.11</td>
<td>-.29**</td>
<td>-.18*</td>
</tr>
<tr>
<td>LAC – Biological Inadequacies</td>
<td>-.09</td>
<td>-.12</td>
<td>-.26**</td>
<td>.11</td>
</tr>
<tr>
<td>LAC – Self-blame</td>
<td>-.09</td>
<td>-.12</td>
<td>-.26**</td>
<td>-.11</td>
</tr>
<tr>
<td>Threat to Self-esteem</td>
<td>-.22*</td>
<td>-.22*</td>
<td>-.46**</td>
<td>-.07</td>
</tr>
<tr>
<td>Threat to Loved One’s Well-being</td>
<td>-.09</td>
<td>-.25**</td>
<td>-.13</td>
<td>-.07</td>
</tr>
<tr>
<td>Threat to Femininity</td>
<td>-.15</td>
<td>-.19*</td>
<td>-.38**</td>
<td>.02</td>
</tr>
<tr>
<td>Threat to Own Health and Well-being</td>
<td>-.08</td>
<td>-.15</td>
<td>-.10</td>
<td>.01</td>
</tr>
<tr>
<td>Threat to Achieving Goal at Work</td>
<td>-.23**</td>
<td>-.04</td>
<td>-.24**</td>
<td>-.02</td>
</tr>
<tr>
<td>Threat to Finances</td>
<td>-.21*</td>
<td>-.12</td>
<td>-.21*</td>
<td>-.15</td>
</tr>
<tr>
<td>Threat of Losing Respect for Someone</td>
<td>-.13</td>
<td>-.07</td>
<td>-.19*</td>
<td>.004</td>
</tr>
<tr>
<td>Threat to Sex Life</td>
<td>-.21*</td>
<td>-.32**</td>
<td>-.19*</td>
<td>.06</td>
</tr>
<tr>
<td>Threat to Fertility</td>
<td>-.17</td>
<td>-.29**</td>
<td>-.26**</td>
<td>-.10</td>
</tr>
<tr>
<td>Secondary Appraisal – Change or Do Something</td>
<td>.14</td>
<td>.01</td>
<td>.07</td>
<td>-.03</td>
</tr>
<tr>
<td>Secondary Appraisal – Accept</td>
<td>.11</td>
<td>.21*</td>
<td>-.09</td>
<td>.12</td>
</tr>
<tr>
<td>Secondary Appraisal – Know More Before Acting</td>
<td>.03</td>
<td>.04</td>
<td>.04</td>
<td>-.02</td>
</tr>
<tr>
<td>Secondary Appraisal – Hold Back</td>
<td>-.30**</td>
<td>-.30**</td>
<td>-.19*</td>
<td>.02</td>
</tr>
</tbody>
</table>

Note that higher scores on the FLIC subscales indicate better adjustment, thus positive correlations indicate an association with better adjustment.

* significant at p<.05
** significant at p<.01

---

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Factors Contributing to Adjustment

Table 37
Correlations of Demographic and Illness Variables with FLIC Subscales

<table>
<thead>
<tr>
<th></th>
<th>Physical Well-being</th>
<th>Hardship</th>
<th>Social Well-being</th>
<th>Nausea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.10</td>
<td>.28**</td>
<td>.23**</td>
<td>.24**</td>
</tr>
<tr>
<td>Education Level</td>
<td>.03</td>
<td>-.07</td>
<td>.04</td>
<td>.09</td>
</tr>
<tr>
<td>Income</td>
<td>-.04</td>
<td>-.14</td>
<td>-.02</td>
<td>.10</td>
</tr>
<tr>
<td>Length of Marriage</td>
<td>.07</td>
<td>.02</td>
<td>.14</td>
<td>.16</td>
</tr>
<tr>
<td>Prior Mental Health History</td>
<td>-.08</td>
<td>-.09</td>
<td>-.13</td>
<td>.03</td>
</tr>
<tr>
<td>Time Since Diagnosis</td>
<td>.03</td>
<td>.22*</td>
<td>.05</td>
<td>.09</td>
</tr>
<tr>
<td>Time in Remission</td>
<td>.13</td>
<td>.22*</td>
<td>.06</td>
<td>.07</td>
</tr>
<tr>
<td>Number of Occurrences</td>
<td>-.02</td>
<td>-.16</td>
<td>.04</td>
<td>-.04</td>
</tr>
<tr>
<td>Number of Surgeries</td>
<td>-.24**</td>
<td>-.28**</td>
<td>-.20*</td>
<td>-.14</td>
</tr>
<tr>
<td>Stage of Illness</td>
<td>-.23*</td>
<td>-.22*</td>
<td>.02</td>
<td>-.02</td>
</tr>
<tr>
<td>Perception of Prognosis</td>
<td>-.05</td>
<td>-.08</td>
<td>-.02</td>
<td>.07</td>
</tr>
<tr>
<td>Insurance Coverage</td>
<td>-.05</td>
<td>-.07</td>
<td>-.19*</td>
<td>-.23</td>
</tr>
</tbody>
</table>

* significant at p<.05 (2-tailed)
** significant at p<.01 (2-tailed)

Note that higher scores on FLIC subscales indicate better adjustment. Thus positive correlations indicate an association with better adjustment, while negative correlations indicate an association with poorer adjustment. Prior Mental Health History, Perception of Prognosis, and Insurance Coverage are all rated so that higher scores are worse than lower scores.
Factors Contributing to Adjustment

Age correlated significantly with Hardship scores, with older subjects reporting less Hardship. Greater length of time since diagnosis and greater length of time in remission both correlated significantly with less perceived Hardship. More advanced stage of illness correlated with more perceived Hardship.

**FLIC Social Well-being**

This scale measures the degree to which respondents are willing to spend time with those close to them. Entering the coping strategies into a regression equation with Social well-being as the dependent variable, the multiple correlation was .488, accounting for 23.8% of the variance ($F [15,92] = 1.915, \ p=.031$). The only significant contributor was Behavioral disengagement ($p=.02$), more use of this was associated with less willingness to spend time with friends and loved ones. A number of the other coping strategy scales correlated significantly with Social well-being scores: refer back to Table 35 for the correlation coefficients.

Better scores on this scale correlated significantly with more perceived social support from friends and family, with more positive and fewer negative life events, with better health insurance coverage, with older age, and with longer marriage. Social well-being scores correlated significantly with most of the causal attribution and primary appraisal scales, and with the secondary appraisal Hold back. In all these cases, stronger endorsements of particular causal attributions and greater perceptions of threat were associated with poorer Social well-being. Social well-being was not significantly
Factors Contributing to Adjustment

associated with any of the locus of control scales or the other demographic and illness
variables not mentioned above.

FLIC Nausea

It is not proposed that degree of nausea is in any way caused by the variables
considered in the previous sections. Nevertheless, some of the correlations with locus of
control scales, coping strategies, and other variables were significant. It is possible that in
some of these cases the causal relationship may be in the other direction. For example, an
individual having frequent bouts of nausea may be less inclined to feel that the course of
the illness is under their control, and perhaps more inclined to disengage from problem-
solving efforts.

Discussion of Psychosocial Adjustment and Well-being

Many of the factors that significantly contributed to emotional distress were also
correlated significantly with at least some of the other adjustment measures. Those
associations that represent the most consistent relationships will be discussed next.

Coping was again an important contributor to adjustment, especially use of the
generally less adaptive strategies. More use of Behavioral disengagement, Mental
disengagement, and Venting were the coping strategies the most consistently associated
with poorer adjustment across most domains.
Factors Contributing to Adjustment

Scores on the Constructed Meaning Scale were consistently associated with better adjustment in every domain, including better psychosocial adjustment and less perception of hardship and physical debilitation. More negative life change was associated significantly with poorer adjustment on almost all of the outcome measures. In some cases, this effect could be offset somewhat by the impact of positive life changes. Once again, attributing control to Chance correlated with poorer adjustment in a number of areas.

Perceived social support was particularly important with regard to level of emotional distress and psychosocial adjustment, but was not associated with a significant difference in subjects' reports of their physical well-being or perceptions of the hardship caused by their illness. Similarly, vocational adjustment and sexual adjustment were not influenced by social support from friends or family. Thus, perceptions of social support seem to be most important to preserving emotional well-being and ensuring that interpersonal relationships continue to run smoothly during this stressful time.

Every primary appraisal except the degree to which one perceived one's own health, safety, or physical well-being (highly endorsed by almost all subjects, so not as useful a discriminator) to be at risk was associated with overall psychosocial adjustment. Many of the primary appraisal threats were associated with adjustment in specific domains as well. The secondary appraisal that one had to hold back from doing something one wanted to do again had a negative impact on several areas of psychosocial adjustment.
Factors Contributing to Adjustment

Almost all of the causal attributions were significantly correlated with poorer adjustment in one or more areas. As an example of how this mechanism might work, consider attribution to genetic causes. Causal attribution to genetic factors was not associated with general emotional distress or most areas of adjustment, but did seem to play a role in poorer adjustment on the measures tapping relationships with family members. It is possible that for some individuals, this causal attribution may contribute to increased negative feelings about family members. Alternatively, it may be that people who already have a more negative relationship with family members may be more likely to assign them this form of blame for their current illness. The only causal attribution that was not associated with poorer adjustment in any domain was Spiritual determinism. Believing that one's illness was the result of God's will did not contribute to greater distress levels, but it also did not seem to protect a person from distress either. There has been some debate in past studies about whether it is adaptive for individuals to engage in causal thinking about their illness. Undoubtedly, most people will have some ideas about what caused their illness, and these results suggest that in general individuals may be better off if they accept non-pejorative causes such as spiritual forces or genetics. However, since most of the causal attributions examined in this study were associated with one or more domains of adjustment, and in all cases where the association was present it was a negative one, this supports the idea that it is not particularly helpful to dwell on the cause of one's illness.
Factors Contributing to Adjustment

To summarize, many of the factors that contributed significantly to emotional distress affected adjustment in other areas as well. The results were not identical across different areas of functioning, since individuals may require different resources in order to function well in distinctly different settings, such as at work and in intimate relationships. It seems reasonable to suppose that many of the similarities that were seen across domains may be because factors that promote individuals' emotional well-being in general will help them to function at a more nearly optimal level in various areas of their lives as a whole.

Predicting Vulnerability

The previous analyses have suggested that the multiple GC is one subgroup that is particularly vulnerable to emotional distress. Since this group was relatively small and specific, additional analyses were done to attempt to predict which other individuals might be vulnerable as well. A discriminant analysis was conducted to determine if a subgroup of individuals who are vulnerable to experiencing higher levels of emotional distress could be identified based on aspects of their background and characteristics of their illness. Predictor variables were selected because they represent either components of what the individuals bring with them into the stressful situation of being a cancer patient that may affect how well they are able to adapt, or aspects of the illness itself.

The potential predictors included age, illness stage, number of occurrences, Negative life change, and perceived social support from Friends. These variables were
Factors Contributing to Adjustment

used to predict subjects' membership in two groups, defined according to scores on the combined distress measure: high distress (scores greater than 1 SD above the mean), and low to average distress (all other scores). Independent variables were entered using a stepwise procedure.

For purposes of this analysis the sample was divided approximately in half, with cases being randomly selected for each half. The discriminant function was developed on the first sub-sample (n=53), then used to classify subjects in the remainder of the subjects (n=66). Only support from Friends and age were retained in the final equation. The function derived was significant (Chi-square [2] = 21.085, p<.001), and the resulting classification equation accurately classified 83.3% of the cross-validation subjects. Classification was more accurate for the non-distressed group than the highly distressed group, probably due in part to a low base rate of high distress levels and relatively small sample size. Classification results are presented in Table 38. The Box's M test was not significant (F [3,2648] = .842, p=.471), indicating that the assumption of homogeneity of group covariance matrices was met. The loading matrix suggests that the best predictors for this function were social support from Friends, and age. The standardized discriminant function coefficients are presented in Table 39, and the stepwise statistics are presented in Table 40.

Individual cases within the vulnerable subgroups were examined to determine if there were any individuals who did not report high levels of distress. There were no such individuals in the multiple GC group. All of the subjects with multiple GC reported
Factors Contributing to Adjustment

Table 38
Classification Results: Cross-validation Sample

<table>
<thead>
<tr>
<th>Actual Group Membership</th>
<th>Predicted Group Membership</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low to Average Distress</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Distress</td>
<td></td>
</tr>
<tr>
<td>Count</td>
<td>49</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Percent</td>
<td>90.7</td>
<td>9.3</td>
</tr>
<tr>
<td></td>
<td>50.0</td>
<td>50.0</td>
</tr>
</tbody>
</table>

83.3% of original cases correctly classified

Table 39
Standardized Canonical Discriminant Function Coefficients

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support from Friends</td>
<td>.88</td>
</tr>
<tr>
<td>Age</td>
<td>.53</td>
</tr>
</tbody>
</table>

Table 40
Stepwise Statistics
Variables Entered at Each Step

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered</th>
<th>F value</th>
<th>Degrees of Freedom</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Support from Friends</td>
<td>19.20</td>
<td>1,51</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2</td>
<td>Age</td>
<td>13.11</td>
<td>2,50</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Stage, number of occurrences, and Negative change did not meet criteria for entry into the equation.
Factors Contributing to Adjustment

above average levels of distress, except for the one individual who was excluded due to having been in remission for over four years. Similarly, the number of individuals who were younger and reported low levels of social support who then also had low levels of distress was so small as to make any kind of analysis other than examination of individual cases not feasible. Individual case study was not pursued, since it was thought to be unlikely that anything would emerge as contributing to improving adjustment beyond what has already been discussed with reference to the entire sample, except for possible idiosyncratic personal factors.

It was originally proposed that adjustment in three areas hypothesized to be differentially affected by type of cancer would be predicted as well. These included Body image, close family relationships (measured by PAIS-III) and sexual adjustment (measured by PAIS-IV). However, the results showed that there were no significant differences on these measures based on type of cancer, so further analyses were not done in this area.

General Discussion

The purpose of this study was to examine the differences between women diagnosed with different types of cancer on measures of adjustment and quality of life, and on measures of other factors proposed to contribute to these outcomes. Special
Factors Contributing to Adjustment

attention was given to women with breast and gynecological cancers to determine if these groups are vulnerable to difficulties above and beyond that experienced by women with other types of cancer. The results of this study indicate that there are some differences in adjustment processes and outcomes associated with diagnosis, and also that some factors are consistently associated with better adjustment regardless of type of cancer.

The group differences included that the women with gynecological cancers, especially those with multiple occurrences, reported the greatest degrees of depression. This group had the poorest physical well-being and greatest sense of hardship associated with their illnesses. This was in contrast with several other specific diagnostic groups, particularly the subjects with Chronic Lymphocytic Leukemia, who reported the best physical well-being and the lowest levels of emotional distress. The subjects with GC were the most likely to appraise their situation as involving a threat to their sex life, fertility, and along with the subjects with BC, as a threat to their femininity. The women with GC were less likely to believe that they could change or do something about their situation, and were the most likely to attribute the control over their illness to chance. Finally, they were the least likely to endorse the idea that their illness had a positive meaning and was not permanently interfering with their lives. Women with gynecological cancers who had multiple occurrences and multiple surgeries were a particularly vulnerable group.

The factors that promoted better adjustment for all subjects included not making too much use of disengagement coping or focusing too much on negative emotions.
Factors Contributing to Adjustment

believing that there was something positive in the illness experience and that what happened was under the control of something other than chance, and having more social support, especially from friends. Individuals who experienced more negative life change, either because of additional unrelated stressors or more widespread impact of the illness on their lives, tended to have a more difficult time adjusting. Risk factors for experiencing more distress included a prior history of mental health problems, younger age, and less social support.

Limitations

Limitations of this study include that the sample was self-selected. There may be differences between women who are willing to participate in this type of research, for no compensation other than potentially helping or advocating for others and potentially enhancing their self-understanding, and those who would not be willing. One might speculate that participants in this study represent a group who is coping more successfully on the average, even though some participants in this study were indeed experiencing considerable levels of distress.

An additional way these participants might be different from the population of cancer patients at large is that the vast majority of the participants were actively involved in either in-person or on-line support groups. There may be differences between women who seek out this kind of support, and those who do not. It is not possible to say, however, what form these differences might likely take.
Factors Contributing to Adjustment

Finally, this sample included only women in order to examine the impact of gender-specific cancers. Since no men participated in the study, it cannot be assumed that the conclusions necessarily apply to men. Along similar lines, while this sample was very diverse geographically, and included some individuals from other countries, there was not enough diversity in racial/ethnic background to examine whether there were consistent differences in adjustment or outlook on the illness experience based on ethnicity. This sample was also more highly educated and well off on average than the general population. This is similar to many other studies of breast cancer patients in particular that have included a higher proportion of white, middle to upper class participants.

Implications and Suggestions for Future Research

The results of this study show that some women are more vulnerable to experiencing high levels of distress when faced with having to cope with cancer. Women who are younger and possibly less prepared for the shock of being diagnosed with cancer, who have more stressful life circumstances, who are more socially isolated, and who have had previous struggles with depression or anxiety may be more likely to have difficulty. It would be helpful for health care providers to realize that certain individuals may be more vulnerable than others, to be aware of what some of these risk factors are, and provide them with additional guidance and assistance finding sources of support and information on coping effectively and conceptualizing their illness experience in adaptive
Factors Contributing to Adjustment

ways. It would also be useful for counselors working with cancer patients to know which coping strategies and ways of looking at the illness tend to be more helpful.

Suggestions for direction of future research would include addressing some of the limitations of this study. It could be useful to look at the differences between those who choose to participate in support groups and more extensive information seeking and those who do not. If individuals who participate in these types of groups fare better, it may be useful to do some pre- and post group comparisons to determine which attitudes or perceptions changed as a result of the group experience. It may also be useful to look at gender differences on some of the variable examined in this study. There were some similarities among the participants in terms of, for example, which coping strategies were used the most frequently. It is not clear however whether this represents similarities among cancer patients in general, or just women with cancer. It would be useful to know if the factors that promote better adjustment are different for men and women.

Finally, quite a few of the factors that promote adjustment have been established by previous research and further supported and illuminated by this study. There have been fewer studies, however, using these factors to design and test interventions based on them. We might know that feeling the illness is under the control of chance contributes to greater distress, but what are the effective ways of changing such a perception? Addressing questions such as this will give these findings greater practical utility.
Factors Contributing to Adjustment

Conclusion

The results of this research suggest that cancer patients are likely to experience greater emotional distress when they are more socially isolated or distant from friends and family, are beset with greater amounts of other stressful events in their lives, perceive the cause and control of their illness to be up to the whims of chance, rely on distraction and disengagement to cope, focus on and vent their negative feelings more, and feel that their self-worth and other important areas of their lives are threatened by their illness.

While the women with GC, especially those with multiple occurrences, did tend to experience more negative impact of their illnesses, diagnosis and even severity of illness was not sufficient to predict individuals would have more difficulty. Some individuals who were severely ill were able to cope effectively, while others continued to struggle even after treatment had been successfully completed. Choice of coping strategies was a particularly potent factor. Individuals who gave up having a sense of control over their destiny, who withdrew from active efforts to cope with their situation and instead just tried to distract themselves with other activities tended to experience greater distress. The individuals who attributed the cause and subsequent control over their illness to mere bad luck, chance, or misfortune, experienced more distress, perhaps because believing that there was nothing they could do led to greater uncertainty, fear, and depression. It may be considered good news that some of the strongest predictors of emotional well-being have to do with attitudes, beliefs, and outlook, and that being ill does not doom an individual to additional emotional or psychosocial difficulties.
Factors Contributing to Adjustment

References


Factors Contributing to Adjustment


Factors Contributing to Adjustment


Fife, B. L. (1995). The measurement of meaning in illness. *Social Science in Medicine, 40*(8), 1021-1028.


Factors Contributing to Adjustment


Factors Contributing to Adjustment


Factors Contributing to Adjustment


Factors Contributing to Adjustment


Factors Contributing to Adjustment


Factors Contributing to Adjustment


Factors Contributing to Adjustment

Appendix A

The Body Image Questionnaire

These questions have to do with the way you feel about your body. Please circle the appropriate number:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. I am satisfied with the way I look...................... 1 2 3 4 5
2. I am usually a physically healthy person................ 1 2 3 4 5
3. There have been changes in my appearance as a result of my illness that make me less attractive... 1 2 3 4 5
4. I feel good about my body................................. 1 2 3 4 5
5. I would like to change some parts of my body........... 1 2 3 4 5
6. I don't feel as feminine as I did before my illness. 1 2 3 4 5
7. I feel embarrassed showing my body to others........... 1 2 3 4 5
8. I take good care of my body............................... 1 2 3 4 5
9. I am an attractive person................................... 1 2 3 4 5
10. I avoid looking at myself in the mirror................. 1 2 3 4 5
11. I feel betrayed by my body.................................. 1 2 3 4 5
12. I make an effort to stay in good physical shape... 1 2 3 4 5
13. I don't like other people looking at my body....... 1 2 3 4 5
14. My body is fragile.......................................... 1 2 3 4 5
15. I am satisfied with my weight.............................. 1 2 3 4 5
16. My illness has changed the way I feel about my body 1 2 3 4 5

Items were used in body image measure unless noted otherwise.
* Weight/fitness related, not used in outcome measure
** Eliminated
Factors Contributing to Adjustment

Appendix B
Primary Appraisal portion of Stress Questionnaire
Items added for this study are noted with a "*".

What are the reasons that having cancer is (or was) stressful for you? Please indicate how much each of the following reasons applies to this situation by circling the appropriate number:

<table>
<thead>
<tr>
<th>Does not apply</th>
<th>Applies a little</th>
<th>Applies somewhat</th>
<th>Applies a lot</th>
<th>Applies a great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

IN THIS SITUATION THERE WAS (IS) THE POSSIBILITY OF:

a. Harm to your own health, safety, or physical well-being
  1  2  3  4  5
b. Harm to a loved one's health, safety, or physical well-being
  1  2  3  4  5
c. Harm to a loved one's emotional well-being
  1  2  3  4  5
d. Becoming less physically attractive
  1  2  3  4  5
e. A loved one having difficulty getting along in the world
  1  2  3  4  5
f. Not achieving an important goal at your job or in your work
  1  2  3  4  5
g. Feeling less feminine
  1  2  3  4  5
h. A strain on your financial resources
  1  2  3  4  5
i. Losing the affection of someone important to you
  1  2  3  4  5
j. Losing your self-respect
  1  2  3  4  5
Factors Contributing to Adjustment

<table>
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IN THIS SITUATION THERE WAS (IS) THE POSSIBILITY OF:

k. Appearing to be an uncaring person
   1              2                3                4             5

l. Seeing your body differently
   1              2                3                4             5

m. Appearing unethical
   1              2                3                4             5

n. Losing the approval or respect of someone important to you
   1              2                3                4             5

o. Feeling like less of a woman
   1              2                3                4             5

p. Losing respect for someone else
   1              2                3                4             5

q. Appearing incompetent
   1              2                3                4             5

r. Changes in your sex life
   1              2                3                4             5

s. Not being able to have as many children as you want
   1              2                3                4             5

t. Other
   1              2                3                4             5

Which one of these items applies the most? Please indicate by circling the appropriate letter.

a b c d e f g h i j k l m n o p q r s t

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Factors Contributing to Adjustment

Appendix C
Levels of Attribution and Change
Items added for this study are noted with a "*".

Please indicate to what extent you believe the following factors may have contributed to causing your cancer by circling the appropriate number:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

I believe my getting cancer was partly due to...

- *my eating habits.......................... 1 2 3 4 5
- *close relatives also having cancer........ 1 2 3 4 5
- conflicts I have with my present family..... 1 2 3 4 5
- bad luck which I can't help.................. 1 2 3 4 5
- the unpleasant environment in which I live... 1 2 3 4 5
- the plans God has for me..................... 1 2 3 4 5
- the fact that I really don't know myself.... 1 2 3 4 5
- *an earlier injury or illness that made me vulnerable.... 1 2 3 4 5
- consequences of my value judgments........... 1 2 3 4 5
- the fact that my family doesn't understand me. 1 2 3 4 5
- the will of the Superior Being.............. 1 2 3 4 5
- random misfortunes......................... 1 2 3 4 5
- *my genes................................... 1 2 3 4 5
- *my smoking cigarettes...................... 1 2 3 4 5
- my dissatisfaction with my living conditions 1 2 3 4 5
- not being aware of my true feelings.......... 1 2 3 4 5
- my decision not to change things in my life... 1 2 3 4 5
- my general physical condition............... 1 2 3 4 5
- *not being able to express to others how I really feel 1 2 3 4 5
- disagreements with my parents and siblings.. 1 2 3 4 5
- *my not taking good enough care of my body.... 1 2 3 4 5
- spiritual powers out of my control.......... 1 2 3 4 5
- *bottling up my emotions too much........... 1 2 3 4 5
- just bad luck................................ 1 2 3 4 5
- *aspects of my psychological makeup......... 1 2 3 4 5
- where I live or work......................... 1 2 3 4 5
- my lack of knowledge of myself.............. 1 2 3 4 5
- the style of life I have purposefully chosen 1 2 3 4 5
- difficulties with my health.................. 1 2 3 4 5
- *not being able to openly express anger......... 1 2 3 4 5
- my not having satisfactory relations with my family. 1 2 3 4 5
- higher powers................................ 1 2 3 4 5
- uncontrollable mishaps...................... 1 2 3 4 5
- *not exercising enough...................... 1 2 3 4 5
- disappointments with my present relationships 1 2 3 4 5
- conflicts in my home or work setting......... 1 2 3 4 5
- *my personality............................ 1 2 3 4 5
- my uncertainty about my own values.......... 1 2 3 4 5
- *my unhealthy habits or lifestyle.......... 1 2 3 4 5
- my physical constitution.................... 1 2 3 4 5
- my difficulties dealing with my family's wishes and expectations.................. 1 2 3 4 5
- spiritual forces beyond my control.......... 1 2 3 4 5
Factors Contributing to Adjustment

<table>
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</tbody>
</table>

I believe my getting cancer was partly due to...

*the fact that it runs in the family.................... 1 2 3 4 5
unlucky experiences....................................... 1 2 3 4 5
*feeling blocked in my personal growth.................. 1 2 3 4 5
troublesome relationships with people around me........ 1 2 3 4 5
the fact that I don't like where I live or work........ 1 2 3 4 5
not understanding who I really am........................ 1 2 3 4 5
*being exposed to pesticides or other toxins............ 1 2 3 4 5
values I have chosen for myself........................... 1 2 3 4 5
tension in my family....................................... 1 2 3 4 5
* Superior Being's plan for me............................ 1 2 3 4 5
*not asserting myself enough with people in my life..... 1 2 3 4 5
bad fortune beyond my control.............................. 1 2 3 4 5
*drinking too much alcohol................................ 1 2 3 4 5
not finding happiness in my interpersonal relations..... 1 2 3 4 5
*aspects of my character................................ 1 2 3 4 5
tensions caused by my present home or work situation... 1 2 3 4 5
not knowing what I really want............................ 1 2 3 4 5
the lifestyle I have deliberately adopted................ 1 2 3 4 5
*having a cancer prone personality........................ 1 2 3 4 5
my poor general health................................... 1 2 3 4 5