

## **6. Discussion**

The present study was designed to examine meaning found in cancer, its correlates, and the role of personal and social resources, and coping for its development. In addition to that, patterns of changes in patients' social resources and coping strategies utilized over time were closely inspected.

Moreover, physical and psychological health of cancer patients was investigated and its associations with meaning both cross-sectionally and longitudinally were scrutinized. The hypotheses regarding these associations were previously stated in section 3. Statistical analyses were applied to inspect those hypotheses and related results were reported in section 5. Findings of the study are discussed in the following sections. The following chapter deals with the effect of being diagnosed with and treated for cancer on patients' physical and psychological health.

### **6.1. Cancer: Physical and Psychological Effect**

In general, results indicated that the effect of cancer on patients' physical and psychological health was mild. Looking at the reported negative affect, pain, fatigue, and impairment attributed to illness, results indicated significant changes over time and between particular groups of patients, however, the levels reported, across all measurement points in time, were lower than the midpoints of the relevant scales except for quality of life.

#### **6.1.1. Negative Affect**

At the initial assessment, unexpectedly, low level of negative affect was reported. In addition to that, no associations between negative affect, time elapsed since diagnosis, and cancer recurrence were found, although, newly diagnosed patients (i.e., within-one month diagnosed patients) scored slightly higher than post-one-month diagnosed patients, and patients with no cancer recurrence scored slightly higher than patients with previous cancer experience (i.e., recurrence). There are three explanations for these findings. First, at t1, for a lot of patients, cancer diagnosis was not confirmed until after surgery, thus, the feeling of uncertainty

regarding the nature of the tumor (i.e., malignant or benign) may affect levels of negative affect reported in this phase. Second, patients' expectations of surgery outcome would affect the level of distress they have at the initial assessment. Since undergoing curative surgery indicates a total extrication of the malignant tumor and cancer-related symptoms, patients' optimistic expectation that their treatment will be curative and their tumors will be extricated may affect the level of negative affect they reported at t1. Third, according to Antoni et al. (2001), anxiety rather than distress should be associated with the experience of cancer since cancer represents a continuous threat to life more than a loss of resources. Consequently patients with serious illness may experience more anxiety than distress, sadness, or guilt (Knoll, 2002).

As expected negative affect was higher around the surgery as compared to post-surgery. A steep decline in reports of negative affect on all post-surgery assessments was noticed pointing to the time effect on this parameter and suggesting a co-existing adjustment processes activated by other factors. No significant effect for time elapsed since diagnosis, cancer recurrence, or any other medical data were found. In addition when only patients without cancer recurrence were included in the analyses, a significant time x *chronicity* (i.e., time elapsed since diagnosis) interaction was found indicating that time has different effect on the two groups. A steep decline in report of negative affect in all post-surgery assessments was noticed in the recently diagnosed group with no cancer recurrence indicating that patients experienced the highest level of distress, as expected, at t1. Looking at the other group, another picture emerged; post-one-month diagnosed patients experienced low negative affect at t1, their level of negative affect increased noticeably at 7-day post-surgery assessment, then declined at both one- and 6-months post-surgery, and increased slightly in the last assessment. The low level of negative affect reported at t1 in this group may be due to the longer time elapsed since diagnosis (> 30 days) during which more long-lasting and permanent adjustment may occur, whereas the marked increase in negative affect at t2 indicated the negative effect of surgery.

A few differential results concerning reports of negative affect were found. Women reported significantly higher level of negative affect across all measurement points in time than men. This finding is commonly reported in stress and coping literature

(Nolen-Hoeksema, 1990). This result points to the effect of gender-role attributes that the individual learns early in life and affect his/her expression of adverse feelings, among others (Helmreich, Spence & Holahan, 1979; Knoll, 2002). A significant effect for age on reports of negative affect was also found with the oldest group scoring significantly lower than the middle age group in all assessments and slightly lower than the youngest group in four of the five assessments. As aging involves not only resource decrement but also gains, such as an increased life experience, expertise, and attainment of competence and wisdom (Brandtstädter, 1999), elderly patients may have more resilience and adaptive flexibility compared to younger patients, and therefore can report lower level of negative affect.

Another differential effect was the effect of comorbid renal disease; patients with renal disease scored significantly lower than patients without comorbid renal disease. This finding points to the possibility that previous experience with life threatening disease may enhance patients coping with and adjusting to other negative experience including cancer.

### **6.1.2. Quality of Life**

Although patients continued to report a moderate level of quality of life across all measurements, however, a marked decrement was observed around the surgery pointing to the negative effect of surgery on patients' quality of life. Reports of quality of life, however, increased significantly beyond the one-month post-surgery assessment signifying an ongoing adjustment process. Studies by Forsberg et al. (1996), Knutsson and Bergbom-Engberg (1999), and Karlsson et al. (2000) have shown that patients' quality of life diminished after surgery as compared with their pre-surgery conditions. Rogers et al. (1999) found that patients with oral cancer reported significant decrease in quality of life 3 months post-surgery compared with their pre-surgery reported quality of life.

With regard to the time elapsed since diagnosis and cancer recurrence, no significant effects on quality of life were found. These results are in line with the literature across a range of studies involving cancer patients with different cancer diagnosis. Kornblith (1998) reported that the majority of cancer patients, assessed by different

methods at different points in their post-treatment course adjust very well in the first 1 – 2 years post treatment.

Indicators of severity of cancer were related to level of quality of life experience by patients suggesting that lower quality of life is associated with higher degree of severity of cancer. This association is interpretable since a developing course of cancer and its treatment could be associated with reports of severe pain, and high levels of fatigue that interfere with patients' daily functions, activities, mood, and sleep. No outstanding differential effects for age, sex, marital status, and multimorbidity on quality of life were found, however, differential effect for comorbidity was found. Patients with cardiovascular and pulmonary disease reported lower quality of life compared to patients with no cardiovascular and pulmonary disease. The low level of quality of life among these groups should be related to the cumulative negative effect of both cancer and cardiovascular and pulmonary disease on patients' quality of life. The experience and treatment of these disease accompanied by cancer may exhaust the patient, sap his/her energy, and affect his quality of life.

### **6.1.3. Pain**

Reports of pain across all measurement points in time were low, however, significant time effect on pain, as expected, emerged in the after surgery assessments. These findings suggest that the etiology of pain is cancer related (i.e., caused by tumor growth or cancer treatment), although, the causes of pain could also be associated with other different factors that are unrelated to cancer as well.

Across all assessments, the reported level of pain never exceeded the midpoint of the scale (50) in all assessments suggesting low severity of pain. In previous cancer pain studies, significant pain was defined as equivalent to 5 or above in a scale of 0 to 10. It is at this point that patients report substantially more interference with their function (Cleeland, 1984; Cleeland et al., 1994; Serlin et al., 1995).

Consequently, a degree of 50 in a scale of 0 to 100 should be equivalent to 5 in a scale of 0 to 10. Using this operational definition, the level of pain reported in this study never reached the level of significance and accordingly it can be considered as mild. These results were not expected since pain is considered to be a frequent and

disturbing symptom of cancer (Thomson et al., 1998). The reasons of the mild pain reported in this study in all waves may be due to (a) the presence of a significant proportion of newly diagnosed patients with initial stage of cancer disease, (b) to undergoing curative rather than palliative treatment, (c) and or to patients' reluctance to report pain. The later has been the focus of many studies. Ward et al. (1993) and Lin and Ward (1995) identified 8 barriers to cancer pain control including fears of tolerance and addiction, the belief that good patient do not complain about pain, concerns about side effect, the belief that pain is an inevitable consequence of cancer that should be tolerated, fears of disease progression, and distracting the physician from treating cancer. Results also indicated significant difference between within-one-month diagnosed and to post-one-month-diagnosed patients in pain reported at t1. This finding signifies the presence of physical symptoms and the effect of cancer treatment on pain among the post-one-month diagnosed patients as an indication of a developing course of cancer among this group.

Reports of pain was not related to age and sex, but it was related to marital status indicating that single/with no partner patients reported higher level of pain than other patients at the first assessment. As pain involves personality and situational as well as physiological factors, this result may be due to two factors. First, it could be due the presence of a proportion of patients with a developing course of cancer among this group (i.e., single/with no partner patients) as compared to other groups (i.e., divorced, widowed, married) and, consequently, affects their reported level of pain. Second, it suggests the effect of the lack of support on patients' adjustment. Divorced patients, on the other hand, reported the lowest level of pain at t1. Although the hypothesized lack of support may also be prevalent to this group, too, divorced patients may benefit from the absence of a partner when conflicts and dissatisfaction characterize their marriage, and hence, affect their coping and adjustment.

#### 6.1.4. Fatigue

At t1, patients reported a low level of fatigue. Nevertheless, significant increase in fatigue around the surgery was found indicating a response to injury and repair, after effects of general anesthesia, deconditioning by bed rest, and relative anemia that are associated with surgery (Greenberg, 1998). Fatigue, however, like pain is associated with personality and situational factors as well. Accordingly, worry, grief, and sadness that usually follow cancer diagnosis and its treatment may affect the way patients reported their tiredness around the surgery. Differential results in fatigue showed that within-one-month diagnosed patients reported significantly lower level of fatigue at t1 as compared to post-one-month diagnosed patients. This finding suggests the effect of a developing course of cancer and cancer treatment of fatigue as reported by post-one-month diagnosed patients.

Differential results also indicated that women reported higher level of fatigue at t1 as compared to men. Sex difference for fatigue could be connected to sex difference in negative affect, since fatigue is strongly associated with distress. Weissman and Klerman (1977) found that women tend to report more symptomatology than men over a whole spectrum of disorders, specially those related to affect.

Differential results also showed that older patients reported the highest level of fatigue as compared to younger patients. These differences may be due to the fact that old patients are usually faced with more health hassles than younger patients including the presence of comorbid disease that may aggregate the negative effect of cancer on their well-being. Folkman and Lazarus (1980) found that in old age the main stressors encountered are related to health problems. Results also indicated significant differences between single and married/with partner patients in fatigue reported at t1 with the single patients scoring significantly higher than the married/with partner patients. These differences, again, point to the buffering effect of social support on physical and emotional well-being. Schwarzer and Schröder (1997) found that heart patients, who reported high levels of perceived support, tended to be more energetic and active and less worried compared to other patients who reported lower level of perceived support.

Findings also revealed that reports of fatigue increased significantly between the first (t1) and the second assessment (t2). Although this increment points to the effect of cancer surgery on patients' physiological and psychological health. Analyses also showed a significant decrease in all post-one-month assessment signifying an adjustment processes that took place over time. Because, in this study, the sensory character of fatigue (i.e., how much fatigue is reported) and not its meaning (i.e., what kind of activity takes more effort?) is assessed, the association between fatigue and subjective physical and emotional health can not be specified and, thus, deeper interpretation of changes in fatigue over time can not be made.

### **6.1.5. Impairment Attributed to Illness**

Appraised impairment reported at the 3 days pre-surgery assessment was moderate indicating the level of impact of this event on patients. No significant age, sex, and marital status in impairment attributed to illness at t1 were found. These findings may be due to the way impairment due to illness was assessed in this study. The question used to evaluate the degree of impairment does not specify certain domains of impairment (e.g., functional, social, and emotional aspects), thus, the interpretation of this question may vary according to the subjective judgment and the domain of impairment experienced by the patient.

Reports of impairment increased significantly between t1 and t2 pointing to the effect of surgery on patients' functioning. This increment could also be due to confrontation with the cancer diagnosis because, for many patients, the diagnosis with cancer was confirmed after surgery. Reports of impairment due to illness, however, decrease significantly after the one-month post-surgery assessment signifying an ongoing adjustment process.

In sum, these findings regarding the physical and psychological effects of cancer on patients well-being point to the cancer as a mild, but still somewhat stressful experience. The explanations for these unexpected findings are, (a) many patients were not aware of their diagnosis until after surgery, (b) a significant proportion of patients were diagnosed with cancer for more than 1 month which allow them time to get over the shock of cancer diagnosis and to adjust themselves more to the situation,

and (c) improvement in knowledge of cancer etiology, during the last decades took place and, accordingly, clues as to how the *occurrence* and development of cancer can be prevented were provided. In addition, there is a decline in deaths from cancers that were usually lethal in the past; cancers are now diagnosed and treated with a much higher degree of success.

## 6.2. Personal and Social Resources

### 6.2.1. Self-Efficacy Beliefs

In general, patients reported a moderate self-efficacy beliefs. No differential effects for age, sex, marital status on perceived efficacy beliefs were found, although, men reported slightly higher levels of efficacy-beliefs than women did. These results speak for self-efficacy beliefs as a generalized trait reflecting both a personal resource factor to cope with stress in various life domains and an optimistic self-beliefs that relate to confidence in the individual's overall coping resources. In fact, the empirical association between self-efficacy and optimism was found to be above .60 (Schwarzer, 1994) attesting to the strong associations between them. Moreover, the moderate level of efficacy beliefs reported may be seen as a sign of mental health and a key resource during time of stress (Hobfoll & Walfish, 1984). Pearlin and Schooler (1978) also found that the presence of a positive attitudes towards oneself and having a sense that one is in control of the stressors affecting one's life were effective resources in vitiating the effects of stressors. Many studies provide evidence for the importance of high optimistic self-beliefs among cancer patients. Self-efficacy was a significant predictor of survival among breast cancer patients and patients with multifaceted site of cancer (Merluzzi & Nairn, 1999). This effect was found even after controlling for the presence of metastases.

The present study also revealed that self-efficacy beliefs were associated positively, although not significantly, with the multimorbidity and undergoing another surgery, indicating that patients who reported having more than one non-cancerous disease and undergoing another surgery also reported higher levels of efficacy beliefs compared to other patients. These associations suggest the role of previous *personal accomplishment* for the maintenance of personal competence and efficacy



perception. Experiencing stressful life situations, such as multimorbidity and surgery, may enhance perception of control and mastery if patients manage to cope *successfully* with the related demands.

### 6.2.2. Social Support

With regard to social support, as expected, social support was high at the first assessment (t1). At the initial assessment, all patients regardless of their age and sex reported receiving high social support from their social network. Previous research finding showed that the more support patients received from others, the better they are adjusted to cancer (Schulz & Mohamed, in press). Results also revealed a differential effect of marital status on received support reported at this point in time indicating that married patients or those with partners tend to receive more social support than non married patients (i.e., single, divorced, and widowed). Marriage, in general, is considered to be beneficial to human functioning. In addition the support provided by patients' intimate partners may not be compensated for by any other sources of support (Hegelson & Cohen, 1996) and, thus, plays a crucial role in patients' adjustment to cancer (Hagedoorn et al., 2000). Following the same line, a loss of spouse is regarded as a breakdown of one's social network that is often followed by psychological and physiological consequences such as depression and illness (Schwarzer & Leppin, 1992).

Furthermore, results indicated that social integration (i.e., the presence of a number of resources of support) measured at t1 was associated with received social support at t1, however, this association was low ( $r = .18, p < .01, n = 344$ ); no other significant associations between received support and number of resources of support were found. This finding is in line with other findings; Seeman and Berkman (1988), and Schwarzer and Leppin (1992) found that measures of network size are weakly associated with measures of available support. In addition, the presence of a number of support resources may reflect the perceived availability of support (i.e., perceived social support) as it reflects the beliefs of the existence of people who care about and value the individual, and on whom one can rely when one is in need. Schwarzer and Leppin (1992) specified factors that could account for the weak associations or

discrepancies between received and perceived social support. According to them, the over- or underreporting of support received due to inaccurate perception or memory failure influences associations between received and perceived support. In addition too high and optimistically biased expectations of support pre-event would result in disappointment when life event strikes and, consequently, leads to reporting low levels of received support. In the same way, too modest expectations of support from others can also increase this discrepancy if greater than expected support is received. Furthermore, the diffusion of responsibility among the network members, that is, the assumption that some one else from the network, other than the support provider, is available and can provide the needed help would also cause discrepancies between the expected and received support. Finally, the misperception of degree of closeness between the support provider and support receiver can affect associations between expected the actually received support when the receiver feel close to the provider who does not reciprocate intimacy.

Findings also showed that received support, as expected was high around surgery, however, it declined significantly in all post-one-month assessments. The explanation of this decline would be that network members can not cope with cancer implications and progress in the long run, and hence, feel burn out and cease to provide the same level of support, specially if the patients fail to show signs of gratitude and affection (Schwarzer & Leppin, 1992). However, despite this significant decline, reports of received support remained, across all assessments, above the midpoint of the scale indicating that the dissipation of support may also be a reaction to an ongoing adjustment process that renders the patient more in control and less in need of support.

Received support was not associated with recurrence, with time elapsed since the initial diagnosis or with any other medical data. These results suggest that all cancer patients, regardless of their site and stage of cancer received high social support at t1 and around the surgery. Findings also showed a significant effect of sex on received support over time with men reporting higher levels of support received as compared to women.

Unexpectedly, both received support and the presence of a number of resources were not significantly associated with personal resources (i.e., self-efficacy beliefs) at all assessments. As self-efficacy beliefs are related to the patient's agency to cope

effectively with cancer (e.g., searching information about cancer treatment), the lack of significant associations between self-efficacy and social support highlights a question previously raised by Schwarzer and Leppin about whether it makes a difference for the network members' willingness to extend help and provide support if the victim of the life crisis is actively coping or not. Although these authors stress the role of a transactional process that involves both the provider's perceptions about the onset cause (e.g., responsibility of diseases through smoking in the case of lung cancer patients) and the recipient's coping behavior for levels support provided, the lack of significant association between support received, number of resources, and patients' self-efficacy beliefs at this point in time (t1) suggest that most of cancer patients received high social support regardless of the providers' perceptions of causes and patients' coping and mobilization of his/her network.

### **6.3. Coping with Cancer**

Because cancer is associated with constraints of action resources and tends to promote feelings of loss and anxiety, it is remarkable that there is no evidence for a consistent or general decline in measurement of well-being and subjective quality of life. In general, people with cancer have been found to cope with their health problems usually by expressing frequently less pain, discomfort, and frustration compared to than other patients. In addition to that, individuals with cancer have been found to avoid or deny the existence of problems, to be emotionally controlled, and to lack the initiative in seeking medical treatment for their health problems, more than other patients (Goldstein & Antoni, 1989).

In the present study, looking at how patients coped with cancer showed that at t1 patients use more accommodatory and avoidant coping as compared to active strategies, although, the three reported coping strategies were above the midpoints of the scales.

Accommodation pertains to patients' efforts in acknowledging the illness with a positive rather than resigning accentuation (Schwarzer et al., in press.), accommodation may involve emotional, cognitive and behavioral efforts to adjust the self to the unchangeable situation (i.e., cancer disease) by adjusting goals and self-definitions so that they confirm with action resources and developmental potential that the individual have or believed they have (Brandstätter, 1999). The reasons why

did patients report high level of accommodation at the initial assessment may be due to the fact that many patients did not know about their diagnosis because the cancer diagnosis, for a lot of them, was confirmed after surgery. Thus, the feeling of uncertainty in this situation may call on the use of accommodation and avoidant coping rather than active coping since the individual has no control over the diagnosis or its impact. Second, 40.7% were post-one-month diagnosed with cancer. Consequently, the long time elapsed since diagnosis characterizing this group may allow for adjustment processes to take place. Results showed that post-one-month diagnosed patients reported more use of accommodation and active coping as compared to within-one-month diagnosed patients confirming the second explanation. In addition at t1, those experiencing cancer recurrence reported higher level of accommodation compared with patients with no recurrence; no other differences between these two groups of patients in active or avoidant coping were found. The explanation for the higher level of accommodation used by patients with recurrence is that they benefited from their previous experience with cancer, and accordingly, managed to accommodate themselves to cancer better than those with no previous cancer experience.

Moreover, the presence of other non-cancerous diseases (i.e., multimorbidity) was marginally associated with more use of accommodation indicating that those experiencing other non-cancerous diseases at the same time were more likely to accommodate themselves to living with cancer than other patients who have no comorbid non-cancerous diseases. As cancer and its implications (e.g., having a stoma, undergoing chemotherapy) call on relinquishing barren goals and adjusting future plans to a feasible range, the use of accommodation reflects adjustment to cancer and its treatment. Furthermore, accommodation of goals and plans prevents or buffers against feelings of frustration and helplessness that continue to exist as long as the individual adheres to unattainable or blocked goals (Elster, 1989).

Differential effects were also found for sex and age; women tend to use more avoidant coping as compared to men, whereas, older patients reported higher levels of accommodation and lower levels of active coping compared to younger patients. As aging inherently involves a shrinking of temporal resources of action, old individuals learn how to optimize the balance between positive and negative changes through preventive, corrective, and compensatory efforts that increase their resilience

and flexibility when stressful life events occur (Brandstätter, 1999). This competence enhance their coping with stressful life events such as cancer, and thus, may explain the way they accommodate themselves to it. With regard to gender differences in avoidant coping, previous research points to the role of socialization processes on these differences. Gender differences were found in rumination, active coping, and avoidance; with women reporting higher level of rumination and avoidant coping and lower level of active coping as compared to men. (Nolen-Hoeksema & Panagopoulou, 1998).

Concerning the hypotheses whether significant increases in active and accommodatory coping would be accompanied by a decrease on avoidant coping over time, results confirmed these hypotheses, although all coping strategies remained above the midpoints of the relevant scales. Patients with cancer, within the one-year follow-up assessments, may have faced multiple challenges and stressors that varied with the clinical course of the disease and, simultaneously, called on patients resources to cope with cancer implications (e.g., chemotherapy, changed self-image, and recurrence). Accordingly, these results argue for cancer experience as a continuous process in which the individual tries to manage emotional distress and gain control over cancer-related life events by solving specific cancer-related problems (i.e., active coping) and accommodating themselves to living with cancer (Brenan, 2001).

With regard to concurrent associations between coping and support received, avoidant coping was associated with received support at the first and second assessments (t1 and t2). Because avoidant coping assessed in this study was not specific regarding what kind of behavior and/or cognitions that patients used to distract themselves from ruminating about cancer (e.g., whether patients avoid thinking about cancer by drinking alcohol or joining a language course), this association could be an indicator of a positive effect of social support on coping (e.g., joining a language course) or a sheer co-occurrence of support and distress as signified by the use of avoidant coping. Schwarzer and Leppin (1992) showed that higher level of negative affect is associated with more support received when life event strikes and one's network is mobilized.

Analyses also indicated that active coping assessed at t1 was concurrently related to social integration measured by the presence of a number of resources at the initial assessment (t1). This association indicates that support's availability may serve as a resource, even if sources of support are not called on for assistance (Hobfoll, 2001). Correlational analyses also revealed associations between received support, reported active coping, and accommodation across all assessments ranging from moderate to weak. These results speak for the role of social environment resources as critical antecedent variables for coping. Social support can be looked at as coping assistance (Thoits, 1985) that attribute to changing the stressful encounter and to solving the problem at hand. Thus, well-embedded patients, who received social support, can cope *successfully* with cancer. The cross-sectional association between received support, active coping, and accommodation also speak for a presence of a reciprocal effects between resources and coping behavior as well. Those who cope better with living with cancer receive more social support than those who do not and, simultaneously, mobilize more support from their social network.

With regard to associations between coping and personal resources, self-efficacy beliefs were positively and significantly associated with active and accommodatory coping across all assessments. These associations suggest also how patients appraise the situation and how they react to it. According to Lazarus and Folkman (1984), evaluative judgments about one's coping options and personal resources (e.g., self-efficacy beliefs) influence both events' appraisal and coping. Thus, high self-efficacious patients would appraise stressful situations in a different way and, thus, cope in a more effective way compared to those with low self-efficacy beliefs. People who believe strongly in their problem solving capabilities remain highly efficient in their analytic thinking in complex and demanding situations, whereas those who are plagued by self-doubts err in their analytic thinking. The Analytic thinking, in turn affect the way people perform, cope with, and find meaning in adversities.

#### 6.4. Finding Meaning in Cancer

The major hypotheses concerning the development of meaning and benefits found in cancer and its associations with both demographic and medical variables were proposed based on theories on meaning and previous research findings. Within this context meaning is predicted to be low at the initial assessment because cancer patients will be too busy coping with the diagnosis and treatment of cancer to consider searching for or finding meaning in cancer. As results have shown at the initial assessment, a moderate level of meaning measured as an increased appreciation of life found in cancer emerged. According to Calhoun and Tedeschi (1999), Appreciation of life is one of the most frequently reported manifestation of post-traumatic growth. Appreciation of life reported by cancer patients would involve intense appreciation for everyday things: playing with a child, listening to one's favourite kind of music, being more deeply touched by the sunset, or relishing simply spending time with friends (Calhoun & Tedeschi, 1999, p 14). Because a moderate level of meaning measured as appreciation of life at this point in time was not expected, associations between this type of meaning and other variables were examined to see what accounted for this finding.

Differential analyses revealed that within-one-month diagnosed patients reported lower levels of meaning found in cancer at t1 compared to post-one-month diagnosed patients, although both groups scored above the midpoint of the scale. This difference points to the effect of time on the development of meaning. With regard to association between cancer recurrence and level of meaning reported, no significant association was found. Patients reported a moderate level of meaning regardless of the presence of cancer recurrence. Looking at the time effect on meaning, as expected, meaning increased significantly over time. Because time is very essential in the recovery processes, this result suggests that people who were better able to absorb cancer, i.e., those in the middle of the normal curve of adjustment, would find more meaning and benefit from their experience compared to those at the highest or lowest levels of adjustment (Calhoun & Tedeschi, 1999). Furthermore, the changes in meaning could also be affected by the degree to which the changed schemas (i.e., the perceived positive changes about one's self) can be enacted in behaviors that others observe, and the response of the individual's network to these changes.

#### 6.4.1. Meaning and the Demographic Variables

Concerning sex, age, marital status, having children, and number of children, the present results showed no effect for marital status, having children, and the number of children on meaning measured as appreciation of life at t1. Results, however, indicated that at t1 women reported higher levels of meaning compared to men.

Examining associations between the total score of benefit finding measured at the 12 months post-surgery, age, sex, marital status, having children, and number of children revealed no significant associations. With regard to associations between demographic factors and the four subscales of the benefit finding scale, women reported significantly lower levels of positive changes in family relationships and slightly higher levels of personal growth as compared to men. In addition married patients reported higher levels of positive changes in family relationships as compared to non-married patients (i.e., single, divorced, and widowed patients). These sex differences in positive changes in family relationships may be related to sex differences found in support received over time. Men reported higher level of support received than women and, consequently, they would benefit more from this support compared to women. Following the same line, as married patients receive more social support than non married patients, they would be more able to benefit from it through perceived positive changes in their family relationships. Although sex difference in personal growth was slight, this finding replicates other findings (Park, Cohen & Murch, 1996; Tedeschi & Calhoun, 1996) that showed that women reported higher levels of growth compared with men. These studies, however, provided no information regarding factors that could be involved in these differences, but they suggested that these differences may provide some clues about the processing of trauma that can produce meaning and growth. No significant effects of having children and the number of children on these four types of benefits assessed at t5 were found.

With regard to age, at t1 older patients reported higher level of appreciation of life or meaning found in cancer as compared to younger patients. Because aging involves a variety of changes in many life domains and functioning and confronts the old individual with loss in resources and loved ones, stress inoculation effect that takes place over time may render future similar experience less stressing, in part through



an individual's accommodative coping repertoire and/or the increased mastery, self-confidence, and changes in perspectives and values. According to Brandstätter (1999), aging involves not only resources decrement but also gains, such as life experience, expertise, attainment of virtues and competences as they are addressed in the conceptualization of wisdom. Previous research findings related to the effect of age on finding meaning and reporting gains, however, are contradictory. Age was inversely related to benefit finding (Dunkel-Schetter, Feinstein, Talyor & Falke, 1992), whereas other research found no association between them (Mohr et al., 1999; Abraido-Lanza, 1998). These contradictions may be due to the types of meaning and assessment applied in these studies.

#### **6.4.2. Meaning and Medical Variables**

Analyses also revealed no significant associations between indicators of severity of cancer and meaning measured as an increased appreciation of life (t1), and no significant associations with the total score of benefit finding reported at t5. Concerning the four subscales of the benefit finding, analyses revealed no significant effect of the time elapsed since diagnosis on all the four subscales (i.e., acceptance of life imperfection, personal growth, positive changes in family relationships, and an increased sensitivity to others). However, when only patients with no cancer recurrence were selected for the analyses, results showed significant effect of the time elapsed since diagnosis on acceptance of life imperfection indicating that post-one-month diagnosed patients reported more acceptance than within-one-month diagnosed patients (the two groups were built based on t1 data. The period of one year time lag should be taken into account when perceiving these results).

Undergoing another surgery was associated with lower levels of personal growth, and acceptance of life imperfection. These findings highlight the multidimensional character of meaning found in adversities and that different dimensions of meaning may be related, in different ways, to well-being and adjustment. As time allows for more utilization of coping strategies that are directed toward working on emotions and adapting to the unchangeable situation, an increased acceptance of life imperfection would develop as patients manage to get over their distress. Using the same token, distress associated with undergoing another surgery may prohibit the

transformational functions of some coping strategies, that is, coping that leads to skills acquisition, relational status, or self-knowledge and growth (Aldwin, 1994).

### **6.4.3. Meaning and Personal and Social Resources**

With regard to the cross-sectional associations between meaning measured as an increased appreciation of life and personal and social resources, results indicated that meaning across all assessments was associated with received social support, with the number of support sources only at t1, and with self-efficacy beliefs at t3, t4, and slightly at t5. In addition to that, results also showed a significant time by self-efficacy interaction on meaning (i.e., the dichotomized self-efficacy beliefs) indicating that patients who reported high self-efficacy beliefs tend to report an increased meaning over time as compared to low self-efficacious patients. Cross-sectional analyses also revealed that the total score of benefit finding was significantly associated with received social support measured at t5.

The number of resources measured at t1 was slightly associated with the total score of benefit finding (t5). In addition significant association between self-efficacy beliefs and the total score of benefit finding (t5) was also found. Examining associations between self-efficacy and the four scales reported at t5 revealed significant correlations with personal growth, an increased sensitivity to other people, and marginally with acceptance of life imperfection. Cross-sectional analyses also revealed that received social support reported at t5 was associated with personal growth, an increased sensitivity to other people, positive changes in family relationships, and acceptance of life imperfection. The presence of a number of support resources measured at t1, however, was associated only with positive changes in family relationships and an increased sensitivity to other people (t5). These patterns of associations between self-efficacy beliefs, social support, and the different types of meaning and benefits found in cancer indicate that the route to different types of meaning and benefits may involve different types of processes, personality aspects, and social support context. According to Tedeschi, Park, and Calhoun (1998), positive changes in family relationships and an increased sensitivity to other people appear to be primarily an interpersonal behavior domain, whereas, an increased appreciation of life, acceptance of life imperfection, and personal growth

may indicate personal strength that involves aspects of the beliefs system including a change in identity, rearranging priorities and goals in life, and spiritual changes.

In addition certain personality variables may affect meaning and benefits in different ways. Tedeschi and Calhoun (1996) found that Openness to Experience (NEO) correlated with New Possibilities (e.g., developed new interest) and Personal Strength factors of their Posttraumatic Growth Scale. Moreover, they found that Extraversion and Agreeableness (NEO) correlated with Relating to Others Factor of the PTGI suggesting that people who are agreeable may find that others respond to them in a more supportive way after trauma, whereas the NEO Conscientious was related to Personal Strength indicating that individuals who are disciplined and orderly rely on, develop, and appreciate this type of meaning after trauma.

#### **6.4.4. Meaning and Coping**

Concerning associations between meaning measured as an increased appreciation of life and coping in all waves, cross-sectional associations revealed significant correlations with meaning, active coping, and accommodation at all assessments. In addition significant concurrent associations were also found between the total score of the benefit finding, accommodation, and active coping. Thus, individuals who find benefits and meaning in cancer tend to utilize more productive coping strategies. These association can also be interpreted in another way, that is, using strategies which involve active efforts to get over the negative circumstance enhance finding meaning in cancer. Problem-focused strategies were also found to have salutary effects on global mental health, lower levels of depression and anxiety, and an increased vigour in cancer patients (Livneh, 2000). Aldwin, Sutton, and Lachman (1996) studied community-dwelling adults who reported dealing with low points in their lives by using instrumental, problem-focused coping. Their results proved that these coping strategies were positively related to experiencing positive changes, whereas using escapism was positively related to experiencing negative changes.

Testing cross-sectional associations between coping and the four subscales of the benefit finding, all measured at t5, showed that active coping was associated with all the four subscales, whereas accommodation was associated with three of the subscale; acceptance of life imperfection, personal growth, and an increased sensitivity to other people. Accommodation was not associated with positive changes

in family relationships. These different patterns of associations between coping strategies and the four subscales suggest that the way individuals cope with trauma (e.g., cancer) may also affect the type of meaning and benefits reported later in life. According to Tedeschi and Calhoun (1996) a person who reported personal strength as an aspect of growth may be quite different from a person who reported a spiritual development in that the former may be able to cope with trauma by exerting some control while the later may be faced with a greater lack of control (e.g., cancer). Furthermore, a person who reported positive changes in family relationship might have felt more need to self-disclosure due to intrusive thoughts and feeling that she/he sought to regulate in this way. The recognition of one's vulnerability can lead to more disclosure through talking about private feelings, willingness to accept help, and a utilization of social support that may have been previously ignored by the individual (Tedeschi & Calhoun, 1996).

Unexpectedly, results of the present study showed that avoidant coping was associated with meaning measured as an increased appreciation of life in all waves. In addition avoidant coping measured at t5 was significantly, but modestly, correlated with the total score of the benefit finding scale, with an increased sensitivity to other people, with personal growth, and marginally with positive changes in family relationship. The explanation for these associations could be related to the strategies patients used to avoid thinking about cancer. Because avoidant coping assessed in this study was not specified in terms of behavior or cognitions, it is not possible to evaluate them as adaptive or maladaptive coping strategies. Avoidant strategies may range from alcohol consumption to focusing on the positive sequelae of cancer in order to avoid thinking about the negative ones (i.e., Benefit reminding). Furthermore, avoidance can be adaptive or maladaptive depending on the timing of an event and the degree of controllability associated with it. Previous research showed that among survivors of head and neck cancer, employing either problem focused coping or avoidant coping was associated with lower level of emotional distress, both initially and at a future time period (Manuel, Roth, Keefe, and Brantely, 1987; Livneh, 2000). In addition to that, according to Aldwin (1994, p 101) and Lazarus (1983) avoidant coping used within the context of cancer is used as a way of maintaining hope; persons with terminal cancer may be planning the next year's vacation on one day and crying the next day because they

know that they have a few weeks to live. Thus, avoidant coping can be effective in distracting people's attention from their distress so that they can regain their emotional equilibrium and concentrate on better coping strategies to be used later on. This cognitive distraction also allows for time to re-evaluate relationships, readjust goals, and rearrange priorities, and thus, construe a new meaning to one's life.

#### **6.4.5. Meaning, Resources, and Coping: Pattern of Associations over Time**

*The 7-Item Meaning Scale.* The presence of certain patterns of associations between personal and social resources, coping, and meaning found in cancer were examined by selecting three successive measurement points in time, at a time, and investigating the associations between the aforementioned variables measured in them. First model, using path analyses, examined whether coping mediated the relationships between self-efficacy beliefs and social support reported at 3 days pre-surgery, coping reported at 7 days post-surgery, and meaning reported at 1 month post-surgery indicated that only active coping mediated the association between self-efficacy beliefs and meaning. No mediation effect for accommodation and avoidant coping on either the relationship between received support or self-efficacy beliefs and meaning were found. The path model, however, indicated that self-efficacy beliefs predicted accommodation reported at 7-days post-surgery; and the number of resources measured at t1 predicted received support reported at the same point in time.

Examinations of patterns of associations between self-efficacy beliefs, social support reported at 7 days post-surgery (t2), coping reported at 1 month post-surgery (t3), and meaning reported at 6 months post-surgery (t4) showed that active coping continued to be a significant mediator of the relationship between self-efficacy beliefs and meaning. Results also indicated no associations between received support, active coping, and meaning, however, received support predicted accommodation measured 21 days later (t3). No association between number of resources measured at t1 and support received at t2 was found; and no association between avoidant coping assessed at t3, self-efficacy beliefs and social support received or number of resources were also found. The association between received support and accommodation emerged in the second model suggests that support

received at 7 days post-surgery, that is, when the patients needed it most, increased patients' accommodation to both cancer implication and surgery-related symptoms.

Path analyses were utilized again to examine the prevalence of the previously found patterns of associations between self-efficacy beliefs and social support measured at 1 month post-surgery (t3), coping measured at 6 months post-surgery (t4), and meaning measured at 12 months post-surgery (t5). Results indicated that active coping was the only mediator of the relationship between self-efficacy beliefs and meaning, whereas no other mediator effect for coping was found. Self-efficacy was also associated with accommodation. Received support was not associated with meaning or active coping, however, it continued to predict accommodation assessed 5 months later. Avoidance coping was neither associated to patients' resources nor to meaning reported at t5.

The reasons why active coping mediated the relationship between self-efficacy beliefs and meaning over time could be due the strong association between self-efficacy beliefs and active coping. Self-efficacy beliefs are considered to be antecedents of the actual coping process. These beliefs of efficacy pertain to the internal coping options that are available in a particular stressful encounter. However, if the individual underestimates his or her potential for action, no adaptive strategies will be developed. Thus, high self-efficacious persons are more likely to cope actively with stressors compared to low self-efficacious persons (Bandura, 1997; Jerusalem & Schwarzer, 1992). Results also showed that number of sources of support predict both received social support reported at t1 and active coping reported 9 days later (t2). As perceived availability of social network (i.e., the presence of a number of support sources, functions as a coping resource (Schwarzer & Leppin, 1992) it can make the appraisal of threatening and harmful events less severe or even nonexistent. Accordingly, it would enhance active coping through seeking help and communicating skillfully with network members, and simultaneously, receive more social support and adjust better to the situation.

With regard to the presence of a consistent pattern of associations between self-efficacy beliefs, active coping, and meaning measured as appreciation of life suggest the role of personal agency and assimilative coping style (indicated by the use of active coping) on acquisition and maintenances of meaning found in cancer. The lack

of consistent pattern of associations between support, coping, and meaning suggest the time effect on support received that may affect the way people cope with cancer and, simultaneously, the meaning they found in it.

***The 17-Item Benefit Finding Scale.*** Path analyses were also used to examine whether coping measured at 6 months post-surgery (t4) mediate the relationship between self-efficacy beliefs, received support measured at 1 month post-surgery (t3), and the total score of benefit finding measured at 12 months post-surgery (t5). Results indicated a direct effect for social support on benefit finding that was not mediated by coping, whereas a significant mediator effect for active coping in the relationship between self-efficacy beliefs and benefit finding was found. Avoidant coping, as previously found, was neither associated with personal and social resources nor with benefit finding.

The direct and unmediated path between social support and benefit found 11 months later suggest that the effect of support received on benefits found in cancer may involve coping strategies other than those used in the study (e.g., self-disclosure, seeking support). Tedeschi and Calhoun (1996) specified self-disclosure as coping strategy that may provide an opportunity to discuss consequences of the trauma event, to try out new behavior, to recognize one's own vulnerability, and to be willing to accept support when provided by others.

Because self-efficacy beliefs pertain to a stable personality characteristic that is related to feeling of control, to the belief that the individual can handle stressful situation, and to social competence, high self-efficacious patients would utilize more active coping, accommodate themselves to living with cancer, and would find more benefits and gain through the experience. Furthermore, self-efficacy beliefs reflect beliefs of one's ability to master challenging demands by means of adaptive actions. Thus, beliefs of efficacy are related to optimism, intentions and actions, higher achievement, and better social integration (Schwarzer, 1992). These concepts are represented in the Benefit Finding Scale by items measuring personal growth through setting new purposes, rearranging priorities, increasing closeness to others, and searching for a new meaning in life. Accordingly, being self-efficacious enhance

finding more benefits in the experience which, in turn, promotes a better adjustment to cancer.

***The Four Benefit Finding Subscales.*** Testing whether coping measured at 6 months post-surgery (t4) mediate associations between self-efficacy beliefs, social support assessed at 1 month post-surgery (t3) and the four subscales of benefit finding assessed at 12 months post-surgery (t5) showed that active coping completely mediated the relationship between self-efficacy beliefs and an increased sensitivity to other people, and partially mediated the relationship between self-efficacy beliefs and personal growth. Accommodation was found to be a complete mediator of the relationship between self-efficacy beliefs and acceptance of life imperfection. No mediation effect of avoidance was found. In addition social support was significantly associated with family relationships and slightly with an increased sensitivity to other people. No mediation effects for coping on these relationships were found. However, received support was associated with accommodation indicating that higher level of support received at t3 improved accommodation reported at t4. These associations between positive changes in family relationships, increased sensitivity to other people, and social support suggest that received support provides an opportunity to talk and express feelings that may facilitate the confrontation with the circumstance that the individual can't change or control and simultaneously enhance meaning found in cancer (Olsson et al., 2002). On the other hand, the findings that self-efficacy beliefs predicted personal growth, acceptance of life imperfection, and an increased sensitivity to other people reported 11 months later revealed that personality factors might allow for perception of particular benefits and gains and not others (e.g., positive changes in family relationship). For example, as previously mentioned, people who are open to experience are used to examine their experiences and seeing them as less threatening and potentially beneficial; and extroverts can better tolerate stressful events and stimulate social support from social network (Tedeschi & Calhoun, 1996).

In unchangeable situation that involve loss (e.g., bereavement) accommodative flexibility may enhance finding new, meaningful life perspective (Brandstätter, 1999). These aspects of accommodatory mode of coping may explain why accommodation, rather than active coping, mediated the path between self-efficacy beliefs and



acceptance of life imperfection. Acceptance of life imperfection involves adjusting goals and self-definition so that they conform to limited action resources usually prevail in uncontrollable situations (e.g., cancer). Assimilative mode of coping, on the other hand, involves activities through which individuals try to shape themselves and their environments so that they conform to the goals and self-definitions that they have construed for themselves (Brandstätter, 1999). However, in uncontrollable situations such as cancer, assimilative coping are usually channeled to adjust preferences to constraints and limited resources. Thus, personal growth and an increased sensitivity to other people may indicate ways in which individuals shape themselves and to fit in their new schemes as cancer survivors. This may explain the mediating role of active coping in the relationship between self-efficacy beliefs, personal growth, and an increased sensitivity to others.

#### **6.4.6. Meaning and Well-Being: Solving the Paradox?**

*The 7-item Meaning Scale.* With regard to associations between meaning measured as an increased appreciation of life and indicators of adjustment across all measurement points in time, results revealed that at t1 a modest and positive correlation between appreciation of life and negative affect appeared. No other cross-sectional significant associations between meaning measured as appreciation of life, negative affect, pain, fatigue, and impairment attributed to illness appeared. These results are in line with other findings. For example, Yalom and Lieberman (1991) found that some degree of distress may be necessary for the development of meaning found in adversities. The meaning reported in their study, however, did not decrease patients' pain or increase their happiness, however, meaning occurred only when it was preceded by or is associated with distress. According to Tedeschi, Park, and Calhoun (1998), both the timing and the level of distress, are important factors in finding meaning because early extreme distress followed by a significant relief and enduring lower level of distress may promote meaning and growth found in adversities.

Examining the longitudinal associations, however, revealed a different picture. Longitudinal correlations between meaning, pain, fatigue, and impairment attributed to illness showed that pain assessed at t1 was modestly and positively correlated with

meaning reported at t2; and negatively correlated with positive change in family relationships at t5.

With regard to quality of life, significant but modest cross-sectional associations were found at t2 indicating that higher level of meaning was associated with higher level of quality of life, moreover, at t4 better quality of life was associated with higher level of meaning. Longitudinal associations also revealed that higher levels of meaning and benefits found in cancer at t5 were associated with experiencing lower levels of impairment and fatigue and higher level of quality of life at the initial assessments (t1, t2, and t3).

Analyses were also used to assess whether there was a differential effect of meaning measured as an increased appreciation of life at t5 on indicators of adjustment assessed at t5 after controlling for their initial assessments (t1). Results indicated significant differences between high and low meaning groups on quality of life reported at t5 after controlling for quality of life measured at t1. No other differential effects of meaning on fatigue, impairment due to illness, pain, and negative affect were found. Although these associations point to the possibility that growth and meaning may covary with the degree of stressfulness of the event (Tedeschi, Park & Calhoun, 1998), the degree of associations between meaning and indicators of well being, emerged from this study, were too modest to confirm causation or even strong relationships.

***The 17-Item Benefit Finding Scale.*** With regard to cross-sectional associations between the total score of benefit finding, negative affect, quality of life, pain, fatigue, and impairment attributed to illness, no cross-sectional associations were found. The total score of benefit finding, however, was marginally associated with quality of life assessed at t3 indicating that higher level of quality of life reported at one-month post-surgery was associated with higher levels of benefits reported 6 months later. In addition to that, differential effect for benefit finding on levels of fatigue reported at t5 after controlling for fatigue reported at t1 was found. These results indicated that low levels of fatigue were associated with high level of finding benefits in cancer. Because, in this study, the sensory characteristic of fatigue (i.e., insignificant against extreme fatigue) rather than its meaning (i.e., physical aspects of

fatigue such as the patient's inability to climb stairs, or psychological aspects, for example, the patients is grief stricken) of fatigue are reported, its is not clear whether it is the physiological or psychological aspects of fatigue that is associated with benefit or meaning found in cancer at 12-month post-surgery assessment. Although both aspects could be related to meaning and benefits, however, the emotional and psychological aspect may be more related to meaning than the physiological aspect as its management depends on the personal meaning, values, rearranging activities based on their priority, and flexibility (Greenberg, 1998).

*The Four Benefit Finding Subscales.* Concerning cross-sectional associations between the four subscales of the benefits finding and indicators of adjustment (i.e., negative affect, quality of life, pain, fatigue, and impairment attributed to illness) results showed that negative affect reported at t5 was not associated with all types of benefit found in cancer.

With regard to longitudinal correlations, quality of life measured at t1 and t4 was marginally associated with personal growth measured at t5. In addition quality of life measured at t3 was slightly associated with positive changes in family relationships. These results indicated that greater quality of life experienced at the post-surgery assessments was associated with later reports of personal growth and positive changes in family relationships. With regard to t2 pain and fatigue both were negatively associated with positive changes in family relationships reported at t5. Although impairment attributed to illness was not associated cross-sectionally with the four subscales, negative and significant association between impairment reported at t1 and personal growth was found ( $r = -.25, p < .05$ ) indicating that lower levels of impairment experienced at t1 was a associated with later reported of personal growth. No differential effects for these four subscales on indicators of adjustment were found. These results suggest that a modest relationship between meaning reported at t5 and general measures of well-being, however, the direction of these relationships suggest that patients who were better off than others in terms of adjustment were more able to report meaning and finding benefit at the 12-month post-surgery assessment. These findings testify to what Tedeschi and Calhoun (1995) previously postulated regarding associations between post-traumatic growth and well-being.

According to them, persons with average level of psychological adjustment might be better able emotionally to absorb the trauma, and might be fit enough to constructively consider changes that the trauma has introduced into their lives. On the other hand, persons with few psychological resources may be unable to do that and may be more prone to post-traumatic disorder and other distortions. Thus, levels of meaning, benefits, and gains may vary according to persons variables related to psychological and physical health.

### **6.5. Limitations of the Present Study and Perspectives for Future Research**

Although the study has focused the light on how meaning assessed as an increased appreciation of life develops over time, the study lacks indications about how other types of meaning found in cancer that involve social, as well as, personal aspects (e.g., positive changes in interpersonal relationships) develop over time. These types of meaning and benefits were not assessed in all measurements because of the problems of burden and costs. Measuring different aspects of meaning over time would also reveal different patterns of associations between these aspects, coping, and well-being not just in cancer patients but also in individuals with other life threatening diseases (e.g., AIDS).

The present study measured self-efficacy beliefs and received social support as indicators of personal and social resources and confirmed their effective roles for both coping with cancer and finding meaning in and benefiting from it, however, the variance of meaning explained for in the analyses did not exceed 35%, thus, leaving about 65% of unexplained variance. Future research should investigate the role of other types of coping and personal resources that were not assessed in the present study (e.g., support seeking, hope, optimism, hardiness) for finding meaning.

This study also tried to give clues as to how meaning and benefit relate to adjustment measured by negative affect, quality of life, pain, fatigue, and impairment attributed to illness. Although, some relationships appeared, they were not enough to drive a conclusion regarding how meaning and benefit are associated with adjustment in the midst of trauma (e.g., cancer diagnosis) and in its aftermath (e.g., cancer remission). These weak associations emerged could be caused by the scales employed in this

study. As previously mentioned in the discussion, using anxiety measures instead of negative affect may give a different picture of patients adjustment as cancer involves threats to life goals, self-image, and social roles that could inflict anxiety rather than negative affect.

Aside from the assessments' limitation is the inclusion of only cancer patients in this study. By investigating how individuals develop meaning in response to stressful situations other than cancer (e.g., undergoing surgery for less life threatening disease), the level of disruption required to initiate the development of meaning would be more amenable to examination. In addition to that, the sample used in the present study were mostly patients who underwent curative treatment of cancer (i.e., 290 (73.4%) patients). This characteristic of the sample may affect the level and types of meaning perceived in having cancer since many patients did believe that cancer is totally extricated and some of them even refused to answer many questions that were designed to assess how having cancer affect patients well-being.

Another area of limitation is the lack of measurements that can identify ways in which meaning found in cancer affects specific future plans, intentions, and goals that are related to health and social adjustment. Certifying that cancer patients do find meaning in cancer, through reporting an increased appreciation of life, acceptance of life imperfections, positive changes in family relationships, and an increased sensitivity to other people, is a prerequisite for identifying how these changed areas help patients acquire healthy life styles (e.g., sport), change health behavior (e.g., smoking cessation), and adjust to their disabilities and other cancer social implications (e.g., resuming old social roles while stereotyped as cancer survivors).

## **6.6. Conclusions**

Although, having cancer is a stressful experience with the potential for negative psychosocial sequelae (Cordova, Lauren, Cunningham, Carlson & Andrykowski, 2001), results of the present study indicted that cancer experience is a mild stressor (judged by the low levels of pain, fatigue, and negative affect, and the moderate levels of quality of life and impairment attributed to illness across all measurement

points in time). Results also suggest that focusing exclusively on documenting distress and dysfunction as indicators of adjustment following cancer may paint an incomplete and misleading picture. Other research findings showed that while psychological disorders exist in only a minority of cancer survivors, these individuals show signs of similar or better adjustment compared with medical and healthy controls (e.g., Andrikowski, Cordova, Studts & Miller, 1998; Green et al., 1998; Cordova et al., 2001). Moreover, research findings, including the present study, illustrated that cancer survivors often attribute positive life changes to their cancer experience (e.g., Antoni et al., 2001; Taylor, 2000; Kennedy, Tellegan, Kennedy & Havernick, 1976). Thus, in contrast to viewing cancer as a trauma that elicit negative affect and distress, the present study provides more evidence to viewing cancer as an opportunity for both distress and growth. Parkes (1971) used the term *psychosocial transition* to refer to major life events that require the individual to restructure the way he/she perceives the world and plans for living in it. Furthermore, Parkes (1971), Frankl (1963), and Tedeschi and Calhoun (1995) advocated a broader conceptualization of adjustment that takes into account both negative and positive outcomes. The notion of positive outcomes that may follow traumatic events is based on the idea that being confronted with one's mortality may elicit a reevaluation and redefinition of goals and priorities in life, such that the individual emerges with a greater investment in and appreciation of life, interpersonal relationships, spirituality, and personal resources (Tedeschi & Calhoun, 1995).

The present study also highlights the roles of personal and social resources, and coping strategies for perceiving different types of cancer-related meaning and benefits. These results would improve understanding of adjustment processes and propose targets of clinical intervention in individuals with other serious and life threatening experiences.