Chapter-One
Introduction
Cancer is one of the major health problems throughout the world. Because cancer is a potentially fatal disease with an unpredictable disease course, and its treatments are often aversive and debilitating, cancer can engender distress among those at risk. Distress is a response to appraisal of a threatening situation and an individual's ability to manage it. In the cancer context, cancer-specific distress is a patient's or loved one's response to cancer as a stressor. Cancer-specific distress is defined in the literature as an index of how upsetting or psychologically debilitating the disease (or risk) may be, and it is often operationalized as the amount of intrusive and avoidant thoughts in response to cancer-related cues (van Dooren et al., 2005). Distress related to cancer may be viewed as a normative response to increased risk and salient experiences with the disease (Hay et al., 2004). However, typical cancer-specific distress may be augmented by factors such as maladaptive coping, incorrect perceptions of future risk and vulnerability, negative body image, and feelings of fear and uncertainty (Brain et al., 2006).

Cancer-specific distress has been recognized on a diagnostic level since 1994 when cancer diagnosis was listed as a potential traumatic event in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). Thus, under DSM-IV criteria, an experience with cancer can be characterized as involving actual or threatened death or serious injury, or a threat to the physical integrity of self or others. Additionally, the person's response to the experience with cancer is thought to involve intense fear, helplessness, or horror. Symptoms of the cancer-related stress disorder include: persistently re-experiencing the event, avoidance of stimuli associated with the event, and persistent symptoms of increased arousal lasting more than one month. The disorder may be labelled as acute if the symptoms last less than 3 months or chronic if
the symptoms last more than 3 months. A delayed onset form of the disorder occurs on the onset of symptoms is at least 6 months after the incident.

Whether among populations of cancer patients or among those at high-risk for cancer, different levels of cancer-specific distress have been linked with various behavioral implications. For some, cancer-specific distress may be motivation to learn more about one's diagnosis or risk, yet for others it may act as a deterrent regarding health information (Miller, 1995). Extreme cancer-specific distress can lead people to avoid, ignore, or otherwise stop worrying about their risk. On a physiological level, cancer-specific distress has been linked with decreased natural cytotoxic activity, decreased secretions of TH1 cytokines, and elevated levels of stress hormones (Cohen et al., 2002). Moreover, cancer-specific distress may influence the cognitive processing of cancer related information (Erblich et al., 2003).

Many patients report adjustment problems as well as feelings of depression, anxiety, and isolation. Patients may become overly preoccupied with their health and may spend more time focusing on the despair in their future rather than on their present situation (Baum et al., 2001).

Many patients also have to make the decision of which treatment they feel is right for them. Weighing the pros and cons of cancer treatment can cause major distress for cancer patients. Distress may hamper judgment and interfere with coping and problem solving skills. Poor adjustment to cancer can lead to depressed mood and feelings of hopelessness about self and future.

Research has found that psychosocial interventions not only help the patients’ to reduce the stress but may also prolong survival in patients with cancer. Studies show that the higher the level of mood disturbance before the first cycles of chemotherapy, the poorer the clinical and pathological response to chemotherapy.
Psychosocial interventions may help in a number of ways such as enhancing treatment compliance, improving nutrition intake by patients, reducing high risk behaviors, altering coping strategies, improving the quality of life, providing group or other social support, and directly effecting a response to medical treatment. Psychosocial interventions have been found to alter host defenses, such as stimulating the immune system, although the mechanism of action in cancer patients is unclear.

1.1-Purpose of the study

The purpose of this research is to examine the impact of locus of control, personality type and social support, on stress. The demographic variables such as type of cancer, residence, age, gender, income, family strength, and period since diagnosis, are some of the determining variables that make complex outcomes of researches and they might have effect on stress.

1. The study of the relationship between the dependent variable (stress), and independent variables (locus of control, personality type and social support), and find the prediction equation among cancer patients and also determination of the effect size of independent variables (locus of control, personality type and social support) on dependent variable (stress).

2. The study of differences of dependent variable (stress), and independent variable (social support) with the consideration of demographic variables (type of cancer, residence, age, gender, income, family strength, and period since diagnosis).

1.2-Research problem and questions

This study investigates the stress among cancer patients as related to locus of control, personality type and social support. The present research is designed to search possible responses to these questions as given below:
1. What is the equation of regression of stress from locus of control, personality type and social support?

2. Is there significant correlation between stress and locus of control?

3. Is there significant correlation between stress and social support?

4. Is there significant difference between the mean scores of cancer patients' stress with consideration of type of locus of control?

5. Is there significant difference between the mean scores of cancer patients' stress with consideration of personality type?

6. Is there significant difference between the mean scores of cancer patients' stress with consideration of type of cancer?

7. Is there significant difference between the mean scores of cancer patients' stress with consideration of residence?

8. Is there significant difference between the mean scores of cancer patients' stress with consideration of age?

9. Is there significant difference between the mean scores of cancer patients' stress with consideration of gender?

10. Is there significant difference between the mean scores of cancer patients' stress with consideration of income?

11. Is there significant difference between the mean scores of cancer patients' stress with consideration of family strength?

12. Is there significant difference between the mean scores of cancer patients' stress with consideration of period of diagnosis?

13. Is there significant difference between the mean scores of cancer patients' social support with consideration of type of locus of control?

14. Is there significant difference between the mean scores of cancer patients' social
support with consideration of personality type?

15. Is there significant difference between the mean scores of cancer patients’ social support with consideration of type of cancer?

16. Is there significant difference between mean the scores of cancer patients’ social support with consideration of residence?

17. Is there significant difference between the mean scores of cancer patients’ social support with consideration of age level?

18. Is there significant difference between the mean scores of cancer patients’ social support with consideration of gender?

19. Is there significant difference between the mean scores of cancer patients’ social support with consideration of income level?

20. Is there significant difference between the mean scores of cancer patients’ social support with consideration of family strength?

21. Is there significant difference between the mean scores of cancer patients’ social support with consideration of period of diagnosis?

1-3- Significance of the study

In the extensive literature on stress in cancer patients, little has been written about the relationship between stress, locus of control, personality type and social support.

The importance of this study lies in its potential to add a key component to the past research on stress in the clinical psychology and in particular psycho oncology. Insights gained from the proposed study will guide future research and intervention strategies.
The study will provide a useful heuristic for understanding health beliefs and for making predictions about the impact of health beliefs in cancer patients and the outcome of behavioral interventions designed to reduce the stress.

To find the effectiveness of personality type so as to enhance psychological intervention on change, enhancing perceived emotional support, and, ultimately, assisting in the adaptive coping and psychological well-being of cancer patients.

The study will provide an efficacy of social support and the importance of an active engagement associated with more relationship satisfaction so that Interventions would be provided to certain that family members are taught appropriate behaviours to help cancer patient adjust and maintain his or her well being.
Cancer is often viewed as an acute and usually fatal disease. The word cancer comes from the Greek word for Crab, Karakinos. We are familiar with cancer as a tumor—an invasive and malignant growth. The ancient Greek physician who first described cancer noticed that some malignant tumor resemble a Crab—a hard mass with claw like extensions. In modern times, cancer has retained its reputation as an alien invader and is perhaps the most feared of all non-infectious diseases. Cancer is not the most common cause of death, but it is correctly seen as a progressive, often fatal, condition that cannot always be successfully treated.

All tumors are not cancerous. Benign (non cancerous) tumor tend to remain localized and usually do not pose a serious threat to health. In contrast, malignant (cancerous) tumor consists of renegade cells that do not respond to the body’s genetic controls on growth and division of cells.

As people grow-up, normal cells divide rapidly until adulthood. After that, normal cells of most tissues divide only to replace dying cells or to repair injuries in a controlled manner. Cancer cells continue to grow and divide in an uncontrolled manner and can spread to other parts of the body. Cancer cells can accumulate to form tumors that may compress, invade, and destroy normal tissue. If cells break away from a tumor and get into the bloodstream or lymph system, they can be deposited in other areas of the body and form new tumors. The spread of a tumor to a new site is called metastasis. When the cancer spreads, it is still named after the part of the body where it started. Different cancer types vary in their rate of growth, pattern of spreading through the body, and response to different treatments (21st Century Oncology, 2001).

Cancer strikes people of all ages but especially middle-aged people and
elderly. It occurs about equally among people of both sexes and can affect any part of
the body. The parts most often affected are the skin, the digestive organs, the lungs
and the female breasts. Without proper treatment, most kinds of cancer are fatal. In
the past the methods of treatment gave patients little hope for recovery, but presently
the methods of diagnosing and treating the disease have improved greatly.

Since the 1950’s about one-third of all persons treated for cancer recovers
completely, or live much longer than they would have lived without treatment. Much
research is to be done to find methods of prevention and curing the disease. To help
further research in this area, many countries have anticancer programs.

1-4-1-Types of cancer

There are more than 100 identifiable forms of cancer. Although lung cancer is
the most deadly form (accounting for about 30 percent of total cancer deaths
annually), cancer can attack virtually any part of body with devastating results.

The four most commonly occurring types of cancer are:

Carcinoma: this is cancer of the epithelial tissues that forms the skin and the linings
of the internal organs. Carcinomas accounts for approximately 85 percent of all adult
cancers. They include cancer of breast, prostate, colon, lungs, pancreas, and skin.

Sarcomas: this is cancer of connective tissue, malignancies of cells in muscles,
bones, cartilage and fluid. Much rare than carcinoma, sarcomas account for only
about percent of all cancers in adults.

Lymphomas: this is one of the types of cancers that form in the lymphatic system.
Included in this group is Hodgkin’s disease. This is a rare form of lymphoma that
spreads from a single lymph node and non Hodgkin’s lymphoma, in which malignant
cells are found at several sites. Approximately 60,000 new cases of lymphoma are
diagnosed each year of which 90 percent are non Hodgkin’s lymphoma.
Leukemia: This type of cancer attacks the blood and blood-forming tissues, such as bone marrow. Leukemia leads to a proliferation of white blood cells in the bloodstream and bone marrow, which impair the immune system. Although often considered a childhood disease, leukemia strikes for more adults (as estimated 25,000 cases per year) than children (about 3000 cases per year).

There are many types of common cancer.

Lung Cancer

Carcinomas arising in the lung have recently become the most common type of cancer to occur and, by far, account for the leading cause of cancer-related deaths. In addition, the incidence of lung cancer has been increasing and continues to increase relentlessly every decade.

Carcinomas of the lung most frequently occur in the 50 to 60 years old age group and are associated with many kinds of irritants ranging from asbestos to tobacco smoke. One of the most common symptoms of lung cancer is a persistent cough. Other symptoms include chest pain, shortness of breath and blood coughed up from the lung (hemoptysis).

Breast cancer

Breast cancer is the next most common malignancy and the most common cause of cancer–related deaths in females. The disease has a wide variety of presentations, as well as behaviors. In some patients it proves to be rapidly fatal, while other patients manage to live in symbiosis with their disease for many years. In addition, the disease frequently proves to be hormonally sensitive and the clinical course and management in preversus postmenopausal patients may differ significantly.

Carcinoma of the breast usually is found as a painless mass within the breast.
at times becoming attached to overlying skin causing dimpling or retraction of the
nipple, one uncommon clinical variant occurs in the so called inflammatory breast
carcinoma which may result from a particularly aggressive tumor. in such cases, the
lesion rapidly obstruct draining coetaneous lymphatics causing a red, hot, swollen,
lender breast which may appear inflammatory in nature. Breast cancer typically
occurs in the pre-menopausal period and appears to be related to an unopposed,
prolonged estrogenic stimulus. For example, women who never were pregnant and
therefore never had their menstrual cycle interrupted, have an increased incidence of
breast cancer. Conversely, women who were pregnant before age 20 or nursed their
babies for prolonged periods or who had an oophorectomy at a young age appear to
have a smaller risk of this disease.

Biopsy frequently discloses plugging dermal lymphatic by tumor. Patients
having inflammatory breast carcinoma have an extremely poor prognosis and
frequently die of metastatic disease within a short period.

Breast cancer is most likely to strike women between the ages of 35 and 55 to
about the age of 65. in rare instances, men also develop breast cancer. Nearly 70
percent of all female breast cancer patients recover and remain free of the disease 5
years or longer after treatment.

**Colorectal cancer**

Colorectal cancer is cancer of the large intestine (colon). In the western world
this is one of the most common type of cancers. its incidence rises with age,
beginning around 40 and reaching a peak between 60 and 75 men and women are
affected about equally.

Symptoms of colorectal cancer vary, depending on the site of the growth in
the colon or rectum. Generally there is a change in bowel habits such as constipation,
diarrhoea, or episodes of both, and occasionally nausea or anemia, stool may become either flattened or pencil shaped, and they may contain blood, visible or not. Because colorectal cancer is slow growing, physical symptoms may not appear for quite sometime. The best prospect for an early diagnosis lies in regular physical examinations that include stool testing for blood and proctoscopic examination.

Prostate Gland Cancer

Gland cancer involves the large gland surrounding the male urethra just below the bladder, affecting about 96,000 men annually. The disease progresses very slowly. Only when the disease is well-advanced the symptoms occur. One of the main symptom is difficulty in urination, resulting from an enlarged prostate, normally about the size of chestnut, which then obstructs the flow of urine. There may be a need to urinate frequently, particularly at night. Urination may be accompanied by a painful or burning sensation. Blood may appear in the urine, and urination may be difficult to start and stop.

These symptoms occur more frequently with a benign enlargement of the prostate, called benign prostate hypertrophy.

Bladder cancer

Bladder cancer is the most common malignancy of the urinary tract. About 70 percent of those who get bladder cancer are men, many of whom are between the ages of 50 and 70. An early symptom may be a small amount of blood in the urine (microhematuria). This is more often associated with conditions of the kidneys. A more common sign of bladder cancer is gross hematuria, where the urine becomes red. If the malignancy has developed in the bladder wall itself, it spreads rapidly to underlying muscles and is very difficult to treat. If the cancer has not spread before treatment is initiated, the recovery rate is about 70 percent. Recurrence of bladder
cancer is relatively common.

Papillary cancer of the bladder is a very common form of the disease. It does not grow into the bladder wall itself rather; it is attached to it by a kind of stem. It is easily removed by a surgical procedure.

Skin cancer

A common cause of skin cancer is excessive exposure to sun, the most frequent victims being people with fair skin. Many of them live in the southern and south-western states, where the sun is strong and the skin is frequently exposed to it. Skin sensitivity to the sun may also be increased by antibiotics, certain drugs, and birth control pills. Symptoms of skin cancer may include any change in the appearance of the skin, such as a wound that does not heal, or any sudden change in a birth mark, mole or wart. Any mole that bleeds, enlarges, itches, shows up after age 30, or becomes tender should be examined by a doctor immediately. Special precautions with moles are extremely important because they are often starting point for malignant melanoma, a deadly form of skin cancer that can spread to other parts of the body.

Leukemia

Sometimes called blood cancer. It is a disease of the bone marrow, where blood cells are produced. It is characterized by an increase in abnormal immature leukocytes (white blood cells). which then interferes with the production and function of normal white cells, needed by the body fight infection.

Leukemia is the most prevalent type of cancer in children, though the incidence of the disease in adult is far higher, roughly 8 to 10 males or twice are likely to get the disease. Symptoms include fatigue, blood in the stool, bleeding gums, frequent infections and bruises, enlarged spleen and lymph nodes, pain in the bones or
joints and weight loss.

Leukemia may be diagnosed by examining blood smears under a microscope, but the confirmation requires an examination of the bone marrow. The marrow sample obtained by inserting a needle into the hip bone or sternum of the patient while using a local anesthetic.

1-4-2-Symptoms of cancer

Cancer has no symptoms in the earliest stages it may appear before the cancer begins to spread. The American cancer society lists seven warnings, anyone of which may indicate that disease is developing:

1. Any changes in bowel or bladder habits. These might indicate cancer of colon, bladder or prostate.
2. A sore does not heal. This could be a warning that mouth and skin cancer is developing.
3. Blood in the urine may be a symptom of bladder or kidney cancer. Blood or mucus in the stool may indicate bowel cancer, unusual vaginal discharge or bleeding might be a sign of cancer of the female reproductive organs.
4. A thickening or a lump in the breast or elsewhere in the body.
5. Persistent indigestion or difficulty in swallowing. These may be sign of stomach cancer or cancer of esophagus or throat.
6. Obvious change in wart or a mole, any sudden change in their size, shape or color could signal skin cancer.
7. Persistent cough or chronic croakiness. A persistent cough may be a sign of lung cancer, especially if accompanied by spitting of blood and loss of weight.

Anyone experiencing these symptoms for two or more weeks should promptly consult a physician. Any of these symptoms should be considered a possible
warning sign of cancer, but not definite indications of cancer. Authorities agree that early detection of cancer is the most important ingredient in successful treatment. Certain type of cancer can be detected in the early stages of development through self examination. Breast cancer and testicular cancer is common example.

1-4-3-Causes

There is no specific cause of cancer. Most experts agree that people develop cancer mainly through repeated contact with one or more cancer causing agents, known as carcinogens. Scientists suspect that some people may agree to a tendency towards some forms of cancer, such as breast and colon cancer.

Carcinogens increase the probability of cancer because they damage body cells, eventually causing at least one cell to become cancerous. The most common chemical carcinogen is the tar found in tobacco smoke. Industrial chemicals, such as arsenic, asbestos, and some oil and coal products, can increase the risk of cancer. Chemical carcinogens polluting air and drinking water can raise the risk of cancer for entire communities. In microscopic concentrations they are also used in some food and agricultural processes.

Some natural substances, such as the molds that grow on corn and peanut crops, are also suspected carcinogens. Diets that are high in fat may play a role in colon cancer.

Over exposure to the ultraviolet rays in the sunlight can cause skin cancer, particularly in people with fair, sensitive skin. Large doses of X-rays are also a cancer hazard, as are radioactive substances.

Moreover, some psychological factors play a vital role in the development of cancer and predicting behaviors such as smoking and diet, which are implicated in its
initiation. The association between melancholia and cancer was first suggested by Galen in A.D. 200-300. Gedman (1701) also suggested that cancer might be related to life disasters. Following are some common psychological factors.

**Behavioral factors.** Behavioral factors have been shown to play a role in the initiation and promotion of cancer. Smith and Jacobson (1989) reported that 30 percent of cancers are related to tobacco use and 35 percent to alcohol. These behaviors can be predicted by examining individuals' health beliefs.

**Stress.** It has also been shown that stress has a role to play in cancer. Laudenslage et al. (1983) reported a study which involved exposing cancer-prone mice to stress (shaking the cage). They found that if this stressor could be controlled, there was a decrease in the rate of tumor development. If the stressor was perceived as controllable, this resulted in an increase in tumor development. This suggests a role for stress in the initiation of cancer. Sklar and Anisman (1981) suggested that an increase in stress increased the promotion of cancer, not its initiation.

**Life events.** It has been also suggested that life events play a role in cancer. A study by Jacobs and Charles (1980) examined the differences in life events between families who had a member who was a cancer victim and families who did not. They reported that among families with a cancer victim, more had seen their health status deteriorate and more had got divorced, suggesting that life event may well contribute to the onset of cancer.

**Type C personality.** Type C individuals are described as passive, appeasing, helpless, other focused and unexpressive of emotions. Eysenck (1990) described it a cancer prone personality, and suggests that this characteristic of individuals who react to stress with helplessness and hopelessness, and individuals who repress emotional reactions to life events. An early study by Kissen (1966) supported this relationship.
between personality and cancer. It is reported that heavy smokers who develop lung cancer have a poorly developed outlet for their emotions, perhaps suggesting type C personality. (Shaffer et al., 1987), carried out a prospective study to examine the predictive capacity of personality and its relationship to describe cancer in medical students over 30 years. At follow-up, they describe the type of individual who was more likely to develop cancer as having impaired self-awareness, being self-sacrificing, self-blaming and not being emotionally expressive. The result from this study suggests that those individuals who had this type of personality were sixteen times more likely to develop cancer than those individuals who did not.

Some studies have suggested the role of cancer prone personality type (type-personality), and its link with the onset or progression of cancer (Bleiker, 1995; Eysenck, 1994; Greer & Morris, 1975).

1-4-4-Prevalence of Cancer in India

Cancer rate in India is lower than those seen in western countries but are rising with increasing migration of rural population to the cities, increase in life expectancy and change in life style. According to National Cancer Registry Programme of Indian Council of Medical Research (1997), Cancer rate in India in 1997 as follow:
Table 1.1 Leading Cancers in Population Based Cancer Registries under National Cancer Registry Programme of ICMR (1997), Men

<table>
<thead>
<tr>
<th>Rank</th>
<th>Bangalore</th>
<th>Bhopal</th>
<th>Chennai</th>
<th>Delhi</th>
<th>Mumbai</th>
<th>Barshi (Rural)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stomach (5)</td>
<td>Lungs (7.2)</td>
<td>Stomach (9.6)</td>
<td>Lungs (7.4)</td>
<td>Lungs (6.4)</td>
<td>Hypopharynx (3.9)</td>
</tr>
<tr>
<td>2</td>
<td>Esophagus (4)</td>
<td>Mouth (Unspecified) (4)</td>
<td>Lungs (8.3)</td>
<td>Larynx (5.3)</td>
<td>Esophagus (4.3)</td>
<td>Esophagus (3.5)</td>
</tr>
<tr>
<td>3</td>
<td>Lungs (3.7)</td>
<td>Tongue (4.6)</td>
<td>Esophagus (6.7)</td>
<td>Prostate (3.6)</td>
<td>Larynx (3.7)</td>
<td>Liver (3.1)</td>
</tr>
<tr>
<td>4</td>
<td>Hypopharynx (3.1)</td>
<td>Esophagus (4.5)</td>
<td>Tongue (4.3)</td>
<td>Brain (3.4)</td>
<td>Tongue (3.7)</td>
<td>Myeloid Leukemia</td>
</tr>
<tr>
<td>5</td>
<td>Prostate (2.1)</td>
<td>Hypopharynx (3.3)</td>
<td>Prostate (4)</td>
<td>Tongue (3.2)</td>
<td>Prostate (3.5)</td>
<td>Penis (1.9)</td>
</tr>
</tbody>
</table>

Figures in parent thesis are the crude incidence rates per 100,000.

Table 1.2 Leading Cancers in Population Based Cancer Registries under National Cancer Registry Programme of ICMR (1997), Women

<table>
<thead>
<tr>
<th>Rank</th>
<th>Bangalore</th>
<th>Bhopal</th>
<th>Chennai</th>
<th>Delhi</th>
<th>Mumbai</th>
<th>Barshi (Rural)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breast (14)</td>
<td>Cervix (12.7)</td>
<td>Cervix (23.6)</td>
<td>Breast (19.8)</td>
<td>Breast (20.6)</td>
<td>Cervix (18.7)</td>
</tr>
<tr>
<td>2</td>
<td>Cervix (13.8)</td>
<td>Breast (12.3)</td>
<td>Breast (21.4)</td>
<td>Cervix (15.8)</td>
<td>Cervix (12.1)</td>
<td>Breast (7.5)</td>
</tr>
<tr>
<td>3</td>
<td>Esophagus (3.8)</td>
<td>Ovary (3.5)</td>
<td>Stomach (4)</td>
<td>Ovary (6.5)</td>
<td>Ovary (6)</td>
<td>Esophagus (2.1)</td>
</tr>
<tr>
<td>4</td>
<td>Stomach (3.1)</td>
<td>Esophagus (2.5)</td>
<td>Ovary (4.4)</td>
<td>Gall Bladder (5.6)</td>
<td>Esophagus (3.9)</td>
<td>Ovary (2.1)</td>
</tr>
<tr>
<td>5</td>
<td>Ovary (2.9)</td>
<td>Mouth (unspecified) (2.5)</td>
<td>Esophagus (4.2)</td>
<td>Lymphoma (2.3)</td>
<td>Lungs (3)</td>
<td>Gum (1.5)</td>
</tr>
</tbody>
</table>

Figure in parenthesis are the crude incidence rates per 100,000.
1-4-5- Common Medical Treatments

Surgery and radiation therapy are very effective at controlling cancers that have not spread beyond their site of origin. Radiation therapy is “the treatment of cancer and other diseases with ionizing radiation” (National Cancer Institute, 1992). The target tissue receives deposits of energy that injure or destroy cells by damaging their genetic material. Both cancer cells and normal cells are destroyed. The normal cells are able to repair themselves and function properly again, while the ionizing radiation makes it impossible for the cancer cells to continue to grow. Radiation therapy is often used to treat solid localized tumors and cancers of the blood-forming cells and lymphatic system.

Systemic therapy, which travels throughout the body via the bloodstream, is used to treat cancer that has spread to other parts of the body. There are two main kinds of systemic therapy: chemotherapy and hormone therapy. Chemotherapy involves the use of toxic drugs to kill cancer cells. These drugs are designed to kill or disable rapidly dividing cells. Hormone therapy, however, is used to block hormones that increase the replication of certain cancer cells (National Foundation for Cancer Research).

Cancer may develop when the immune system is not functioning properly or at all. Immunotherapy uses the immune system to help lessen the side effects of some cancer treatments. Immunotherapy also uses the immune system to fight cancer either directly or indirectly by repairing, stimulating, or enhancing the immune system response (National Cancer Institute, 2001).

According to the National Foundation for Cancer Research (2001), the following treatment options for select cancers are among the choices that many cancer patients will need to face. They are:
Prostate cancer - surgery, radiation therapy, hormone therapy, cryosurgery, immunotherapy, chemotherapy (for metastatic disease), and clinical trials.

Breast cancer – surgery, radiation therapy, chemotherapy, hormone therapy, breast reconstruction, bone marrow transplant or stem cell rescue, and clinical trials.

Lung cancer – surgery, radiation therapy, chemotherapy, and clinical trials.

Colo-rectal cancer – surgery, radiation therapy, chemotherapy, and clinical trials.

Non-Hodgkin’s Lymphoma – radiation therapy, chemotherapy, bone marrow transplantation, and clinical trials.

Bladder – surgery, radiation therapy, chemotherapy, immunotherapy, and clinical trials.

Melanoma – surgery, chemotherapy, radiation therapy, immunotherapy, and clinical trials.

Leukemias – chemotherapy, blood transfusions, bone marrow transplantation, and clinical trials.

1-4-6- Psychological Impacts of Cancer

Cancer has historically been viewed as an acute and usually fatal disease. As of 1998, it was estimated that approximately half of all newly diagnosed cancer patients would live for five years or longer. Mullan used the term ‘seasons of survival’ to describe a three stage progression of events which can be related to cancer. ‘Acute survival’ begins at diagnosis and is dominated by the medical treatment process. ‘Extended survival’ refers to the transitional stage during which cancer patients reengage into everyday lives. ‘Permanent survival’ is considered to be disease free (Marcus et al., 1998).

A rationale for expecting psychological effects after cancer treatment has been based on the vulnerability of the cancer patient to three types of stressors (Marcus et
1. Anticipatory stress is defined as the “anticipated threat of death arising from personal confrontation with mortality”. This includes anxiety, depression, damaged body image, and fears of recurrence of cancer.

2. Residual stress has been considered as a form of stress syndrome, a grief reaction, or a traumatic disorder.

3. Current stress is conceptualized as the stress cancer patients confront when reengaging in their premorbid lifestyle.

These stresses together interact to create chronic vulnerability.

Behavioral research and practice are becoming a necessary part of the treatment and care of patients with cancer. Cancer patients struggle with quality of life issues. Behavioral involvement has become more common to help cancer patients to deal with their well-being, their mental health, and other psychosocial factors that affect the disease course as well as the response of the patient to medical treatment and their overall survival (Baum, Thompson, Stollings, Garofalo, & Redinbaugh, 2001).

Many sources of psychological stress and strain are related to the diagnosis of cancer, the treatment of cancer, and the survival of cancer. Distress in patients begins with the discovery and diagnosis of cancer and continues throughout treatment and post-treatment transitions. Psychological complications that are not detected, treated, or prevented can cause complications as well as compromised treatment outcomes.

The treatment of psychological issues in cancer patients is complex. Treatment varies according to stage of illness, patient characteristics, and the phase of discovery or treatment of cancer.

Early interventions seek to prevent major psychological distress when cancer
is discovered and diagnosed. The diagnosis of cancer presents the patient with demands that exceed ordinary daily activities of living. Patients may experience feelings of fear, stress, and uncertainty due to the severe life threat associated with the diagnosis of cancer.

Many patients report adjustment problems as well as feelings of depression, anxiety, and isolation. Feelings of guilt may be present if a patient feels that a past behavior has lead to the current diagnosis of cancer. Adjustment problems may be present for years and may develop into debilitating psychological disorders. Patients may become overly preoccupied with their health and may spend more time focusing on the despair in their future rather than on their present situation (Baum et al., 2001).

Differing severity or disease progression leads to different worry and coping responses among patients. Some cancer patients are forced to deal with disfiguring effects of surgery, such as breast cancer patients having a mastectomy.

Many patients also have to make the decision of which treatment they feel is right for them. Weighing the pros and cons of cancer treatment can cause major distress for cancer patients. Cancer patients commonly exhibit anxiety and depressive symptoms (Chaturvedi & Maguire, 1998).

Distress may hamper judgment and interfere with coping and problem solving skills. Early detection and treatment is generally the best indicator of cancer survival. The needs of cancer patients change throughout the cancer experience. Emotional support, psycho educational material, coping strategies, and relaxation training appear to be valuable throughout the entire disease process.

Cancer patients with advanced disease report more issues with depression and anxiety and the need to work through existential issues. Cancer patients with later stages of disease report more issues with death and dying (Baum et al., 2001).
Advanced stage cancer patients also experience more side effects such as fatigue, sleep disturbance, as well as neuropathic pain.

Many cancers are characterized with concerns about post-treatment sexuality. Self-esteem and body image are a major concern for women diagnosed with breast cancer. Some cancer treatments may induce premature menopause which eliminates reproductive options and creates new problems for patients and their families. Poor adjustment to cancer can lead to depressed mood and feelings of hopelessness about self and future.

Psychological and social morbidity among cancer patients is high. Anxiety, demoralization, suffering, isolation, anger, and depression are especially common in patients with advanced stages of cancer.

1-4-7- Psychosocial Intervention

Cancer patients face many struggles relating to the diagnosis and treatment of their disease. With so many people and their families dealing with cancer, it is important that effective ways of dealing with issues related to cancer be examined. This includes psychological support, as well as medical treatment. In 1870, renowned surgeon James Paget wrote about frequent cases in which deep anxiety, deferred hope, and disappointment were soon followed by such a growth and increase in cancer so that it would be quite realistic to say that mental depression is a weighty addition to the other influences favouring the development of cancer (Walker, Heys, & Eremin, 1999). The idea that psychosocial factors may be implicated in the development and progression of cancer is not a new one. Galenus, for example, over 2000 years ago, wrote that 'melancholic' women were prone to cancer (Mettler & Mettler, 1997).

Research has found that psychosocial interventions not only help the patient to reduce the stress but may also prolong survival in patients with cancer. Studies show
that the higher the level of mood disturbance before the first cycle of chemotherapy, the poorer the clinical and pathological response to chemotherapy (Walker, Heys, & Eremin, 1999).

Identification of people at risk may lead to and encourage healthier lifestyle behaviors that may reduce the likelihood of cancer onset or provide better vigilance and earlier detection among people at risk.

Psychosocial interventions may help in a number of ways such as enhancing treatment compliance, improving nutrition intake by patients, reducing high risk behaviors, altering coping strategies, improving the quality of life, providing group or other social support, and directly effecting a response to medical treatment. Psychosocial interventions have been found to alter host defenses, such as stimulating the immune system, although the mechanism of action in cancer patients is unclear.

Psychosocial interventions are designed to assist patients in coping more effectively with the onset of the psychosocial distress symptoms related to the diagnosis of cancer. Also, interventions are designed to reduce some of the detrimental effects that stress may have on health behaviors as well and future mood disturbances and other psychological symptoms. Some examples include: sexual dysfunction, unemployment, job discrimination, gender identity, and changes in body image. All psychosocial interventions are not the same.

1-5- STRESS

During the 17th century 'stress' was synonymous with notions such as "hardship, strait, adversity or affliction". This concept was strongly influenced throughout the 18th and 19th centuries towards the physical and came to mean a sense of "force, pressure, strain or strong effort" (Pollock 1988). This notion of 'stress' was adopted and refined in engineering and physics during the late 19th and early 20th
centuries (Pollock 1988). In the 1920’s Cannon carried out research into the physiological responses to emotional arousal. Walter B. Cannon first described the “flight or fight response” which he theorized was an evolutionary survival mechanism, present in every living organism including human beings. The result of the “fight or flight” response is a series of physiological changes that help an individual defend against any perceived real threat (Davis et al, 2002). This response serves the individual well during an actual threat, for example, avoiding an oncoming car in traffic.

Regardless of there being substantial literature on stress, there are still many issues regarding its conceptualization that remain unclear (Smith, 2003). Researchers have not come to a unified definition of the term. Kugelmann (1992) and Newton (1995) stated that the concept of stress traces back to ancient Greek texts, which refer to stress as a vague notion of ill health. Selye (1976, 1956) was the first theorist to become interested in linking stress with physical disease and ill health in human beings. Selye divided stress into bad stress and good stress. Good stress was referred to as eustress, and distress referred to bad stress (Selye, 1976). Selye’s work has encouraged a large number of other researchers to examine the concept of stress, thereby contributing to an increase in stress research in the second half of the twentieth century (Goldberger & Breznitz, 1982).

Selye (1976) defined stress as a response or state of tension produced by the stressor(s) or by the actual/perceived demand(s) that remain unmanaged.

Hinkle (1974) described stress as a stimulus not a response as had been described by Selye.

Hetherington (1984) added the two together (stimulus and response), and defined stress as a broad interactive network of factors that includes stimulus,
response, characteristics if the individual, interpretation and appraisal of the event.
and activation of the individual to modify or adapt to the situation.

In the past few decades there have been tens of thousands of articles published
on stress and health (Aneshensel 1992; Thoits 1995). A plethora of disciplines
including psychology, psychiatry, nursing, medicine, sociology, ergonomics,
anthropology, pharmacology, physiology, and neurobiology have been involved in the
study of ‘stress’ (Mulhall 1996). Although the definitions of stress are varied, most
researchers agree that stress can be broadly defined as an individual’s response when
the physical or psychosocial demands of a situation exceed the individual’s ability to
adapt (Weinberg & Richardson, 1981).

Thus, stress may be used to define an external event (or stimulus), a response,
or appraisal of a situation (Cohen, Kessler, & Gordon, 1997). However, disparate uses
of the one term can lead to confusion about its meaning and measurement, and may
hinder comparisons of empirical research employing the concept.

1-5-1-Sources of stress

Stress comes from four basic sources: the environment, social stressors,
physiological conditions or changes, and thoughts (Davis, Eshelman, & McKay,
2002). It is reasonable to suggest that virtually every person succumbs to stress;
because of the wide ranging domain of these basic sources. Stress can have a wide
ranging impact on any individual in a diversity of situations.

*Stimulus or Environmental Stress Perspectives*

Stimulus definitions of stress focus on external stimuli or events. An external
stimulus is defined as stress when it is thought to cause some kind of effect or reaction
on the organism. In the psychological literature, such stimuli have come to be referred
to as stressors. Although some researchers still adopt the term stress to define the
same concept. Different types of stressors that vary in duration and intensity have been distinguished in the literature.

**Chronic stressors** are stimuli or events that the organism is continually exposed to on an unchanging basis (Burchfield, 1979; Day & Livingstone, 2001; Hahn & Smith, 1999). While chronic stressors are constant by nature, they may vary in intensity, from relatively high (e.g., fear of unemployment, chronic pain) to relatively low (e.g., constant minor arguments with coworkers or spouse, Hahn & Smith, 1999; work environments with poor ventilation/lighting, Aldwin, 1994; Rice, 1998).

**Daily hassles.** This is a second group of stressors. These are irritating or annoying demands or events that can occur every day in transactions with the environment. They are distinguished from chronic stressors by being low in both intensity and frequency. However, while specific hassles occur infrequently in any given day, multiple different hassles can occur frequently (Hahn & Smith, 1999). For example, on a given day, a person may miss their bus and be late for work, try to print out an important document only to discover that the printer is malfunctioning, and go home and find the washing is still on the line and it just started to rain. Thus, each of these events are considered a daily hassle if each of them occurs infrequently.

**Acute stressors** are the final major group of stressors. They are intense stimuli/events of a short duration, with a specific time of onset, and have a low likelihood of recurrence (Burchfield, 1979; Day & Livingstone, 2001). Examples may include laboratory stress tasks or academic exams (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002). They may be also similar to traumatic life events such as motor vehicle accidents (Hickling, Blanchard, Mundy, & Veazey, 1999) or environmental disasters (Baum, 1990).

Results from Hahn and Smith's (1999) study on the conceptualization of
various stressors suggested that individuals experience events differently, and so an event that is classified as a chronic stressor to one person may be a daily hassle to another. Thus, this emphasizes the importance of individual appraisal of events (a factor not sufficiently accounted for by the stimulus stress perspective), and the inadequacy of objectively labeling events as chronic or as a daily hassle. Based on the assumption of the intensity or frequency of the event, without taking into account the individual's subjective view.

1-5-2- Stress Response or Biological Perspectives

Response perspectives of stress define stress as the physiological responses of organisms to particular stimuli or situations. The two primary indicative stress response systems are the sympathetic adrenal medullary system (SAM) and the hypothalamic-pituitary-adrenocortical axis (HPA). Interest in the SAM response can be traced back to Walter Cannon's work on the fight-or-flight Response (Cannon, 1932). Activation of the SAM response is thought to elicit stress responses that include increased secretion of the hormone epinephrine, increased blood pressure, heart rate, sweating, and constriction of peripheral blood vessels (Cohen et al., 1997), all of which function to increase physiological resources (e.g., rapid supply of oxygen) to optimise the organism's chances of survival in the event of an attack. The role of the HPA axis was emphasised in Hans Selye's work on a generalised physiological response to excessive stimulation (Selye, 1978). Thus, when an organism is stressed, the anterior pituitary gland secretes adrenocorticotropic hormone (ACTH), which activates the adrenal cortex to secrete additional hormones such as corticosteroids; one of which is cortisol, a hormone primarily involved in glucose regulation (Buchanan, Absi, & Lovallo, 1999) and inhibition of the immune response (Tsigos & Chrousos, 2002). The organism then either adapts to the stressor
(with an alleviation of stress symptoms.), or (in cases where the stressor is sufficiently severe or chronic) the organism becomes exhausted, hormones are no longer secreted, and the organism fails to adapt to the stressor. Sustained stress responses are thought to contribute to attenuation of organ function, and increased health risk. Selye considered the stress response to be non-specific in that it was induced by almost any noxious stimulus, but specific in the sense that particular organs were affected in particular ways (Baum, Davidson, Singer, & Street, 1987). However, Selye's claim was criticised mainly because it was subsequently shown that the responses were not as universal as first proposed (Mason, 1971). A range of different stimuli have been shown to induce variations in the stress response (Maier, Watkins, & Fleshner, 1994), and some noxious stimuli did not produce the reactions observed by Selye in some organisms (Mason, 1971).

1-5-3-Integrative or Transactional Stress Perspectives

The integrative or transactional perspective has dominated modern stress research and emphasises the interaction between the individual and their environment as a key aspect of stress. The most influential model within this paradigm is Lazarus and Folkman's model, which proposes that when potential stressors (i.e., environmental demands) arise, three types of appraisal occur (Folkman & Lazarus, 1985; Lazarus, 1991; Lazarus & Folkman, 1984).

**Primary appraisal** involves interpreting the potential stressor as stressful (threatening, harmful or challenging), irrelevant, or benign-positive. Primary appraisal is dependent on two antecedent conditions: the perceived characteristics of the potential stressor (e.g., intensity, duration, controllability, imminence of harmful confrontation), and characteristics of the individual (e.g., personality dispositions, beliefs, values).
Secondary appraisal involves evaluating whether one’s coping resources (cognitive and behavioural strategies used to tolerate, minimise or overcome difficulties) are adequate to deal with the potential stressor, when the situation is appraised as stressful. Lazarus (1991) denotes reappraisal as the third form of stress appraisal, which refers to appraisals that modify previous appraisals based on feedback from the environment. Thus, an event that is initially appraised as threatening may be later reappraised as benign, and coping strategies that were initially perceived to be lacking may later be found to be adequate. Conversely, events that were initially evaluated as non-threatening may be later reevaluated as stressful.

Like the previous two stress perspectives, this model also suffers from theoretical limitations. Specifically, the transactional perspective fails to provide an inadequate explanation of the particular systems or outcome factors that are affected in any instance of high stress appraisal (e.g., the specific physiological systems activated). Further, this perspective fails to take into account the relationships among these outcome factors, and the environmental contingencies.

1-5-4-The Effects of Stress on Health

A Heuristic Model of the Stress-Disease Process

Despite the disparities in the stress perspectives above, these approaches could be conceivably integrated into an interrelated model of stress and disease. Cohen et al. (1997) recently presented such a model; the heuristic model of the stress process. This model incorporates the stimulus, response, and transactional stress perspectives for a representative view of the course by which objective environmental experiences can influence the disease. This model suggests that in the presence of environmental demands or potential stressors, people appraise whether the stressor poses a threat to them, and whether they could effectively cope with the demand. If they appraise the
demand as threatening, they experience perceived stress, and if not, they experience benign appraisal. Perceived stress is then thought to trigger negative emotional responses, behavioural coping responses and physiological responses that put a person under the risk of physical (infectious or chronic disease) or psychiatric disease. Empirical evidence appears to strongly support the role of perceived stress in the progression of illness, which is consistent with Cohen et al. (1997) heuristic model of stress. Further, there are a number of pathways by which perceived stress appears to affect health. Specifically, there is evidence to suggest that perceived stress has direct effects on physiological systems (e.g., in terms of both cardiovascular and immunological responses). In addition, perceived stress has been shown to affect health by triggering certain mood, coping and health behaviours that have been found to convey health risks (Baum & Poslusny, 1999).

Finally, stress intervention research has taken two main approaches. The first approach is the ecological stress perspective which focuses on changing the environment to better accommodate and reduce stress in individuals across three relevant dimensions: (i) control (ii) uncertainty and (iii) social support.

The second approach is the Stress Adaptation Perspective which encourages the individual to adapt to the environment to reduce stress and focuses on three factors: (i) generalized expectancies of control (ii) Tolerance for ambiguity and (iii) Self-reliance (Quick et al. 2001).

Stress research has been undertaken from three main disciplinary perspectives—biomedical, psychological and sociological. Of these psychological approach will be considered below.

1-5-5-Psychological Approach

The psychological perspective on stress includes the notions that: particular
personalities may be more vulnerable to stress and/or its effects; specific psychological and social states may predispose towards stress and/or its effects; and behavioural responses can occur as reactions to stress.

Topics of interest in this approach are the types of external circumstances that provoke psychological stress, the types of mechanisms that connect circumstances to stress, and the contextual and buffering/exacerbating factors that influence these processes (Bartley et al. 1998). Several different conceptual models detail how the relationship between stressors and the experience of stress can be ‘buffered’.

a. In the stress-suppression model, stress exposure mobilizes a ‘resource’, which then alleviates stress by affecting its appraisal, responses to the stressor, further stress proliferation and/or the relation between stress and ill-health (Taylor & Aspinwall 1996). These factors can be viewed as moderators of the stress process. A variation entails stress depleting the resource as it buffers against stress.

b. The stress-deterrent model portrays resources as causally antecedent to stress – resources reduce the exposure to stress (including stress proliferation), rather than its impact on health (Pearlin 1999). These factors can be viewed as mediators of the stress process.

c. In the third model, stress and resources have separate and opposite effects whilst remaining completely independent of one another. Resources counterbalance the stressor, but do not buffer stress because support operates even in the absence of stress (Aneshensel 1992).

These same models may also be applied to the exacerbation of stress by a variety factors with the obvious converse effect on health outcomes (i.e. greater disease and ill-health). The resources that have been studied as stress buffers/exacerbators can be grouped into four main categories:
Personality traits which have been found to be buffers against stress include hardiness, optimism, and the related concepts of mastery, control and self-efficacy. self-esteem, ego strength, sense of coherence, competence, purpose, humour and conscientiousness. Traits that have been found to increase vulnerability to stress and its effects include negative affectivity (depression, anger, hostility, anxiety), pessimistic explanatory style (Taylor & Aspinwall 1996), Type A personality, fatalism, external locus of control, and powerlessness (Bartley et al. 1998; Wheeler & Frank 1988; Aneshensel 1992). Social support is a type of ‘external resource’ along with factors such as social background, income, employment, time etc. which have been proposed as buffers of the harmful effects of stressors (Bartley et al. 1998).

Research from the psychological perspective has led to a number of insights including the reciprocal relationship between life events and the stress process, in which life events are heavily influenced by many of the same factors that also affect the appraisal and response to stress itself (Taylor & Aspinwall 1996). It appears that various psychological factors can enable people to respond appropriately to stressors, enlist successful coping strategies, stop stressors from intruding on other life domains and mitigate both negative psychological responses and direct health-damaging effects.

It is widely agreed that initial disease severity is likely to be the most important factor in influencing the course of cancer. However, there is a growing literature around the idea that psychological factors such as stressful life events,
negative emotional states and repression, social relationships, coping and adjustment to illness, locus of control and personality factors, might also exert an influence (Bleaker & Vander Ploeg, 1999; Garsen & Goodkin, 1999; Geyer, 1997; McKenna, Zevron, Corn & Rounds, 1999). The most consistent finding in the literature is for the positive relationship between progression of cancer and emotional processing deficits, such as the control over, or failure to express negative emotions through denial, repression, suppression or avoidance (Dattore, Shontz & Coyne, 1980; Eppig-Jordon, Compass & Howell, 1994; Jansen & Muenz, 1984; Jansen, 1987; Stavraky, Donner, Kincade & Stewart, 1988). Emotional suppression has most frequently been associated with the onset or progression of cancer (Gross, 1989).

1-6- LOCUS OF CONTROL

Locus of control refers to an individual's generalized expectations concerning where control over subsequent events resides. In other words, who or what is responsible for what happens. It is analogous to, but distinct from, attributions. According to Weiner the "attribution theory assumes that people try to determine why people do what they do, i.e., attribute causes to behavior." There is a three stage process which underlies an attribution. Step one: the person must perceive or possibly observe the behavior. Step two is to try and figure out if the behavior was intentional, and step three is to determine if the person was forced to perform that behavior. The latter occur after the fact, that is, they are explanations for events that have already happened. Expectancy, which concerns future events, is a critical aspect of locus of control. Locus of control is grounded in expectancy-value theory, which describes human behavior as determined by the perceived likelihood of an event or outcome occurring contingent upon the behavior in question, and the value placed on that event or outcome. More specifically, expectancy-value theory states that if (a) someone
values a particular outcome and (b) that person believes that taking a particular action will produce that outcome, then (c) they are more likely to take that particular action.

The concept of locus of control was developed by Julian Rotter in the 1960s. He originally named this concept Locus of Control of Reinforcement. Rotter actually bridged the gap between Behavioral and Cognitive Psychology. He believed that behavior was greatly guided by the use of reinforcements. These punishments and rewards in turn shaped the way people interpreted the results of their own actions. Defined by Hwang et al. (2000), locus of control is an individual’s belief in whether or not he or she has the ability to bring about change through his or her own behavior.

Julian Rotter's original (1966) locus of control formulation classified generalized beliefs concerning who or what influences things along a bipolar dimension from internal to external control: "Internal control" is the term used to describe the belief that control of future outcomes resides primarily in oneself. People with an internal locus of control believe that they control their own destiny. They also believe that their own experiences are controlled by their own skill or efforts. An example would be "The more I study, the better grades I get" (Gershaw, 1989).

Having an internal locus of control has been associated with information seeking (Lefcourt and Wine, 1969), autonomous decision making (Sherman, 1973) and having a sense of well-being (Lefcourt, 1982). Internal locus of control is highly correlated with increased environmentally responsible behavior (Culen & Volk, 2000; Hwang et al., 2000; Smith-Sebasto, 1995; Smith-Sebasto & Fortner, 1994).

On the other hand "external control" refers to the expectancy that control is outside of oneself, either in the hands of powerful other people or due to fate/chance. In other words, people who tend to have an external locus of control tend to attribute their experiences to fate, chance, or luck. For example, if a student attributes either
their successes or failures to having a bad day, unfair grading procedures on their teacher's part, or even God's will, they can be said to have a more external locus of control. These students might say, "It doesn't matter how hard I study. The teacher just doesn't like me, so I know I won't get a good grade." These students generally don't learn from previous experience. Since they attribute both their successes and failures to luck or chance, they tend to lack persistence and not have very high levels of expectation. Having an external locus of control has been associated with depression (Naditch et al., 1975), anxiety (Feather, 1967) and being less able to cope with life stressors (Sandler and Lakey, 1982).

Hannah Levenson (1973) offered an alternative model. Whereas Rotter's conceptualization viewed locus of control as unidimensional (internal to external), Levenson's model asserts that there are three independent dimensions: Internality, Chance, and Powerful Others. According to Levenson's model, one can endorse each of these dimensions of locus of control independently and at the same time. For example, A person might simultaneously believe that both oneself and powerful others influence outcomes, but that chance does not.

Generally, the development of locus of control stems from family, culture, and past experiences leading to rewards. Most internals have been shown to come from families that focused on effort, education, and responsibility. On the other hand, most externals come from families of a low socioeconomic status where there is a lack of life control. It is observed that 'enabling' parents tend to have children with an external locus of control, and that having an external versus internal locus of control was a statistically valid predictor of academic success. (Lynch, Hurford, and Cole, 2002).

Since its introduction, the locus of control construct has undergone
considerable elaboration and several context-specific instruments have been
developed. Health researchers in particular have embraced locus of control as a
concept for explaining behavior. More recent research in health psychology has
demonstrated a relationship between locus of control and performance of a variety of
health-related behaviors (Nir and Neumann, 1991; Springer et al., 1994; Stewart and
Streiner, 1995; Abbott et al., 1996; Bearinger and Blum, 1997; Norman et al., 1998.
Among these studies, findings suggest that internals tend to respond better than
externals to programs involving self-change (Chapman and Jeffrey, 1979; Saltzer,

Among the most widely used health-specific measures is the Multidimensional
Health Locus of Control Scales (Wallston, Wallston, & DeVellis, 1978). This
instrument retains Levenson's three dimensions but concerns outcomes that are
specifically related to health and illness, such as staying well or becoming ill.

1-7- PERSONALITY

Health psychology involves the investigation of methods that aid the
promotion of good health. Many health psychologists are primarily concerned with
the etiology of cancer and heart disease. These diseases are the leading causes of
death. While traditional risk factors such as sun exposure, smoking status, alcohol
consumption, nutrition, physical activity, and family history are known to have an
important contributory role, they do not fully account for the incidence of disease
(Sanderman & Ranchor, 1997). The notion that personality is linked to disease dates
back to the ancient Greeks who believed that physical and mental health were directly
affected by bodily humours, such as phlegm, choler, blood, and melancholy
(Friedman, 1990). Perceived stress appears to be a vital factor in disease etiology,
with its effects being mediated by diverse biological, psychological and behavioural
pathways. However, there also appears to be some individual variation in the degree to which any given stressor is appraised.

Personality, defined as the relatively stable behavioural patterns and attitudes of a given individual. (Hawkins, 1982) is likely to play an important role. While personality was briefly alluded to in Lazarus and Folkman's (1984) transactional stress model as a determinant of primary appraisal, more attention needs to be given to the types of personality dispositions that make some people more vulnerable to certain stressors and others less so. Personality is a wide-reaching concept and it is possible that only some dimensions are likely to be relevant.

The above stress-related evidence suggests that personality may have an even more pervasive role in disease etiology than simply determining how stress is appraised. For example, personality may determine why some individuals have higher physiological reactivity to acute stressors than others. The stress-coping research suggests that individuals with certain personality dispositions may adopt particular coping styles (adaptive or maladaptive) when dealing with stress. Further, it seems quite plausible that individuals with certain personality dispositions may be more likely to adopt self medicating behaviours (i.e., increased consumption of alcohol or nicotine) or become more sedentary when stressed than others. Therefore, a thorough investigation of the links between personality, stress and health would seem warranted. Personality theorists have put forth various theoretical models to explain the role of personality in disease (in particular, cancer and heart disease), some of which incorporate the role of perceived stress as well as other mediating factors. These models include: the personality-induced hyperactivity model, the dangerous behaviours model, the stress moderators model, and the constitutional predisposition model. They differ mainly in terms of the type of mediator or mediators of personality.
and disease being proposed. For example, the personality-induced hyperreactivity model suggests perceived stress and physiological reactivity are mediators, whereas the mediators proposed in the dangerous behaviours model are exposure to risk behaviours and physiological reactivity. Many of these models include stress as an important mediator in the personality-disease link. While there is a proliferation of empirical evidence to support the role of both personality (Friedman & Rosenman, 1974; Grossarth-Maticek, Eysenck, & Vetter, 1988) and stress (McEwen & Stellar, 1993; Pike et al., 1997) in health, the role of personality remains a more contentious issue.

1-7-1-Models of Personality and Health

1. Personality-induced Hyperactivity Model The Role of Personality & Physiological Reactivity: The personality-induced hyperreactivity approach (Suls & Rittenhouse, 1990), also known as the mechanistic interactional approach (Smith & Anderson, 1986) or the etiologic trait approach (Krantz & Hedges, 1987) postulates that personality plays a causal role in the etiology of disease, whereby some individuals may possess a characteristic style of exaggerated sympathetic and neuroendocrine responses to perceived stressors, due to a tendency to appraise potentially demanding situations as more threatening than persons with other traits. These enhanced physiological responses, if intense and/or chronic, are thought to place strain on the physical body and promote development of disease. An example of this approach is provided in research applications that attempt to explain the link between Type A behaviour and coronary heart disease (CHD), in comparison to healthy Type B behaviour (Contrada & Krantz, 1988; Friedman & Rosenman, 1974; Houston, 1983). Individuals characterised with Type A behaviour are considered to be time-driven, hostile, aggressive, cynical, Competitive, achievement striving, and impatient (Byrne,
1987; Glass, 1977; Price, 1982; Smith & Williams, 1992; Williams, 1989), and have been found to accentuate general stress appraised (Cohen & Edwards, 1989). Further, compared to Type Bs (individuals who are able to express their emotions appropriately, are capable of meeting their own needs and responding to others, and who are relaxed and self-assured, (Temoshok & Dreher, 1992), Type As demonstrate elevated physiological reactions to acute laboratory stress tasks, although studies suggest that this reactivity may be specific to socially Challenging tasks (Gallacher, Bennett, & Sharpe, 1992), rather than psychologically neutral tasks such as the cold pressor test (Corse, Manuck, Cantwell, Giordani, & Matthews, 1982: Ward et al., 1986).

Thus, these findings suggest that the Type As' physiological hyperreactivity may be largely derived in competition with others. Physiological defects have been identified in Type A individuals, such as higher cholesterol levels, faster blood clotting times, and higher triglyceride (fatty-acid) and noradrenaline hormone levels, compared to individuals possessing a Type B personality disposition. These findings are consistent with the expected effects of physiological hyperactivity (Friedman & Rosenman, 1974); that is, increased damage to the lining of arterial walls, subsequent atherosclerotic plaque development, increased blood platelet aggregation, and further cardiac malformations leading to coronary artery disease (CAD) and manifestations of CHD (e.g., angina, myocardial infarction, and sudden death; Smith & Anderson, 1986). Further, the prevalence of other health conditions such as increased incidence of colds and influenza (Suls & Sanders, 1988), migraines and headaches (Woods, Morgan, Day, Jefferson, & Harris, 1984), chest pain (Eaker et al., 1992) and general health complaints (Shoham-Yakubovich, Ragland, Brand, & Syme, 1988) have been found to be more prevalent in Type A individuals.
However, other research was less supportive of the Type A-CHD relationship (Booth-Kewley & Friedman, 1987), with some reporting the effect size of Type A in predicting CHD to be rather small to be of any relevance ($r = 0.009$; Myrtek, 1995). Nonetheless, Amelang (1997) has argued that, while small in absolute terms, the risk of heart disease from personality seems to be of meaningful and similar magnitude to traditional risk factors such as smoking.

2. Dangerous Behaviours Model The Role of Personality & Risky Health Behaviours: The dangerous behaviours model (Suls & Rittenhouse, 1990), also known as the biopsychosocial interactional model (Smith & Anderson, 1986), or the illness behaviour approach (Krantz & Hedges, 1987) posits that individuals with certain personality dispositions may incur greater illness risk by seeking risky or challenging situations and/or risky health behaviours that fit or suit their personalities. Thus, the model assumes that certain personality types create risky and unhealthy lives. For example, individuals with pervading helpless beliefs may take less care of themselves, and may be less likely to seek medical treatment when suspicious physical symptoms arise (e.g., lumps in the breast or chest pains), leading to increased chances of cancer or CHD development. Supportive evidence is provided by findings that Type A individuals place themselves in risky circumstances. For example, it has been reported that Type As often seek challenging and competitive situations (Feather & Volkmer, 1988; Smith & Frohm, 1985), tend to smoke more (Shekelle, Schoenberger, & Stamler, 1976) and consume more alcohol (Folsom et al., 1985) than Type B individuals, and have a tendency to underreport the severity of their physical symptoms (Weidner & Matthews, 1978), which may place them at risk for disease development. Other studies have also found associations of high hostility scores (a feature of the Type A personality) with low physical exercise (Koskenvuo et al.,
1988; Leiker & Hailey, 1988), high alcohol consumption (Houston & Vavak, 1991; Koskenvuo et al., 1988; Leiker & Hailey, 1988; Shekelle et al., 1983), heavier smoking (Dembroski, MacDougall, Costa, & Grandits, 1989; Koskenvuo et al., 1988; Shekelle et al., 1983), more drunk driving (Houston & Vavak, 1991; Leiker & Hailey, 1988), larger body mass indices (Houston & Vavak, 1991), and less self-care (Leiker & Hailey, 1988). Moreover, some personality styles have positive effects. For example, positive associations have been found between conscientiousness and general health behaviours (Booth-Kewley & Vickers, 1994), and between conscientiousness and dietary adherence in renal dialysis patients (Christensen & Smith, 1995).

3. Stress Moderators Model the Role of Personality & Coping Styles: The stress moderators approach (Krantz & Hedges, 1987) suggests that individuals with certain personality dispositions may have tendencies towards using particular coping strategies when stressed, and maladaptive coping styles are thought to lead to adverse physiological and behavioural consequences. Some of the health behaviours discussed in the above dangerous behaviours model (e.g., smoking, alcohol consumption) may be used as a form of coping. However, such health behaviours are not considered as a coping style in the stress-moderators model until stress is perceived. The Type A behaviour pattern is positively associated with emotion-focused coping (Endler & Parker, 1990; Greenglass, 1988; Pittner et al., 1983; Weidner & Matthews, 1978), which is consistent with the aggressive and hostile characteristics of this behaviour pattern. Other studies have identified that Type As are also more likely to use avoidance-focused coping (Endler & Parker, 1990), such as the suppression of aversive physical and emotional states (Pittner & Houston, 1980; Pittner et al., 1983). Some suggest that the suppressive coping strategies are used to allow the Type A
individual to remain in proximity to the stressor in order for them to achieve their competitive (or otherwise ambitious) goals; however, with the negative consequences for health due to prolonged contact with the stressor (Houston, 1981; Matthews & Brunson, 1979; Smith & Anderson, 1986). Watson and Hubbard (1996) also found that individuals with certain personality traits are more likely to adopt certain coping strategies to manage stressful or demanding situations; specifically associations were found between neuroticism and avoidant forms of coping; between conscientiousness and active, problem-focused coping; between extraversion and social support seeking and problem focused coping; between openness and planful problem-solving that involved learning about the problem; and between agreeableness and positive appraisal problem-solving. Further, other studies have found introversion to be associated with less seeking of social support (Amirkhan, Risinger, & Swickert, 1995).

4. Constitutional Predisposition Model: The role of Biology & Personality

The constitutional predisposition approach (Suls & Rittenhouse, 1990), also known as the biologic interactional model (Smith & Anderson, 1986) proposed that personality and physiological hyperactivity are co-effects of a constitutionally based physical weakness. Thus, this approach assumes that personality is substantially heritable. While personality itself may have direct effects on health (in addition to the effects of an inborn physical weakness), it is also proposed that personality may only serve as an indicator of the presence of some underlying abnormality.

Evidence from twin studies suggests that some personality traits may be heritable. For example, greater concordance was found for monozygotic (MZ) twins for some components of Type A, such as loudness of speech, competition for control (Matthews, Rosenman, Dembroski, MacDougall, & Harris, 1984), and hostility scores.
(Carmelli, Rosenman, & Swan, 1988; Cates, Houston, Vavak, Crawford, & Uttley, 1993) than for dizygotic (DZ) twins. Type A individuals show greater physiological reactivity even when under anesthesia (Kahn, Kornfield, Frank, Heller, & Hoar, 1980; Krantz, Arabian, Davia, & Parker, 1982), which is indicative of a constitutional hyperactivity that does not require conscious mediation. Other studies have identified that emotional and behavioural inhibition, a component of the Type C personality (considered to be prognostic of cancer development, (Temoshok & Dreher, 1992), is partly heritable (Kagan, Reznik, & Snidman, 1988; Tellegen et al., 1988), in addition to other personality traits such as neuroticism and extraversion-introversion (Jang, Livesly, & Vernon, 1996; Nicol & Gottesman, 1983; Tellegen et al., 1988). In contrast, other twin studies suggest that the environment could also contribute to personality traits such as hostility. For example, Smith and McGonigle (1991) reported that in a sample of 25 adult MZ twin pairs, co-twin differences in hostility were associated with descriptions of parents as being more hostile and rejecting during childhood. These findings suggest that personality dispositions arise from both genetic and family environment factors, rather than genetic factors alone as posited in the constitutional predisposition model.

Overall, there appears to be empirical evidence to support all four personality-illness approaches. Nevertheless, these approaches are not necessarily mutually exclusive because personality could easily operate at several different points in the causal chain. For example, it is quite plausible that constitutional predispositions may be associated with the tendency to seek challenging or demanding situations. Further, bi-directional and reciprocal effects among the processes should be expected (Suls & Rittenhouse, 1990). For example, challenging situations may lead to further hostility. It is therefore quite conceivable that these personality-illness approaches could be
integrated into a more unified model of personality and disease. The identification of the role of personality in disease is vital for assisting people in disease prevention (assuming that some personality traits are learned, as suggested by findings of Smith & McGonigle, 1991).

1-7-2- Personality type

A tested personality-stress theory of disease that appears to encompass some of the mechanisms suggested in the above four personality-disease models is proposed by Grossarth-Maticek and Eysenck (Eysenck, 1991). A personality-stress theory of disease that appears to be well supported and encompasses several mechanisms proposed by other personality-disease models is that contended by Grossarth-Maticek and Eysenck (Eysenck, 1991a). These researchers suggested that personality has causal effects on disease (specifically cancer and heart disease) via several mechanisms including perceived stress, mood (e.g., depression, anger, and helplessness), and physiological responses. They developed an inventory that aimed to measure certain disease-prone personality types (e.g., cancer-prone and coronary heart disease-prone) that proved to be effective in predicting long-term disease in initially physically healthy individuals (Grossarth-Maticek et al., 1988). Moreover, they carried out several intervention studies that demonstrated long-term disease incidence could be significantly reduced by implementing a treatment that aimed to promote healthier stress behaviours (e.g., autonomy, emotional expression) in individuals characterised as having unhealthy personalities (Grossarth-Maticek & Eysenck, 1991).

Despite the significance of their findings, several independent researchers have questioned the validity of Grossarth-Maticek and Eysenck's results suggesting poor statistical designs, methodological weaknesses and theoretical inconsistencies.
Grossarth-Maticek and Eysenck (1990); (Eysenck, 1988, 1991) proposed a personality-disease theory that outlined personality types that were hypothesised to predict particular diseases or long-term health via their interaction with stress and physical risk factors. They suggested that personality interacts with maladaptive health behaviours (e.g., smoking), whereby combining two or more risk factors such as a cancer-prone personality with a smoking habit, produces a multiplicative health risk for lung cancer (for example), over and above additive effects of each of these risk factors. Grossarth-Maticek and Eysenck (1990) constructed a noteworthy scale Grossarth-Maticek personality-stress inventory (GMPSI) that attempts to measure different types of disease-prone behaviours, thus serving as a great tool for investigating the relationships between multiple personality variables and multiple diseases. Six personality types with different (physical or psychological) health liabilities were proposed.

Individuals with a Type 1, or cancer-prone, personality demonstrate a lack of autonomy and depend on an emotionally highly-valued object (e.g., a person, valued occupation), which they consider as the most important condition for their own wellbeing and happiness. They try and maintain contact with this emotionally valued object via cooperative compliant behaviours that are harmony seeking and unassertive, and have a tendency towards suppressing their emotions in order to maintain this harmony (Grossarth-Maticek, Eysenck, & Vetter, 1988; Grossarth-Maticek & Eysenck, 1990). These features are thought to lead to the development of chronic perceived stress, and depressive and helpless tendencies (when nearness to the highly valued object is not achieved), chronic hormonal elevations (e.g., elevations in cortisol), immunosuppression, and possible cancer development (Eysenck, 1991; Grossarth-Maticek et al., 1988).
Individuals with a Type 2, or coronary heart disease-prone, personality demonstrate a lack of autonomy, and are helplessly dependent on an emotionally valued object that they consider, is an important cause for their distress and unhappiness. When they fail to distance themselves from this object, they experience elevated reactions of anger, aggression, and arousal (Grossarth-Maticek et al., 1988). These features are thought to lead to the development of cardiovascular problems (elevated blood pressure, heart rate, and cholesterol), the development of atherosclerosis, and increased risk for the development of coronary heart disease (CHD) and related cardiovascular diseases (e.g. hypertonia; Grossarth-Maticek et al., 1991).

Individuals with a Type 3, or ambivalent/ego-centered, personality are considered to demonstrate a tendency to constantly shift from typical Type 1 reactions to typical Type 2 reactions. That is, they show a tendency to regard an emotionally valued object as both the most important condition for their happiness, and as the main cause of their unhappiness; thus causing alternations in feelings of helplessness and anger (Grossarth-Maticek et al., 1988). This type is hypothesised to be relatively resistant to physical illness because the Type 1 and 2 features counteract one another (Eysenck, 1991).

Type 4 individuals, or those with a healthy personality type, exhibit autonomy and consider their own autonomy, and that of others, as the most important condition for their own wellbeing and happiness. They are able to self-regulate their behaviour based on its consequences, and are hypothesised to have a disposition towards being generally healthy as they avoid the stress reactions commonly experienced by Type 1 and 2 individuals (Grossarth-Maticek et al., 1988).

The more recently proposed two types (Type 5 and Type 6) are less well
defined and investigated than Types 1, 2, 3, and 4.

Individuals with a Type 5 personality demonstrate rational and antiemotional tendencies and are thought to be prone to depressive disorders and possibly cancer (Grossarth-Maticek & Eysenck, 1990). While Type 5 shares the feature of emotional suppression with Types 1 and 2, Type 5 is distinct as it is also a measure of rational tendencies, and does not contain the autonomy-dependence personality dimension.

Individuals with a Type 6, or anti-social, personality exhibit psychopathic tendencies, such as impulsive and rebellious behaviours, and hostility towards themselves and other people, and are considered to have dispositions towards criminal behaviour and drug addiction (Grossarth-Maticek & Eysenck, 1990).

Grossarth-Maticek et al. (1988) state that there are some similarities between the GMPSI Types 1, 2, and 4 and other disease-prone typologies. For example, they suggest that the Type 2 personality shares the features of anger, hostility and aggression with the Type A coronary-prone behaviour pattern. However, unlike the Type A behaviour pattern, the Type 2 personality also comprises a trait of emotional dependence. Grossarth-Maticek et al. (1988) also suggest that the healthy personality Type 4 corresponds closely to the Type B behaviour pattern as both measures share features of autonomy, appropriate emotional expression, and contentedness. Grossarth-Maticek et al. (1988) considered the Type 1 personality to be similar to the Type C cancer-prone behaviour pattern. However, unlike the Type C behaviour pattern, the Type 1 personality also comprises a trait of emotional dependence. The Type C behaviour pattern (Temoshok & Dreher, 1992) is considered to be prognostic of cancer development, and comprises characteristic features such as an inability to express hostile feelings (Bacon, Rennecker, & Cutler, 1952; Morrison & Paffenbarger, 1981), emotional suppression (Grissom, Weiner, & Weiner, 1975;
Watson et al., 1991), submissiveness, extreme cooperation, and compliance to others' needs (Baltrusch, Stangel, & Waltz, 1988; Faller, Lang, & Schilling, 1996); all of which are features common to the Type 1 personality construct. Moreover, similar to the Type 1 construct, it is theorized that the Type C behavior pattern contributes to feelings of depression, helplessness, and hopelessness, chronic elevations in sympathetic arousal (Julius, Schneider, & Egan, 1985), hypersecretion of stress hormones (e.g., cortisol), immunosuppression, and subsequently, increased risk for cancer development (Kiecolt-Glaser et al., 2002). However, carcinogenesis may also occur via alterations in hormones, cellular DNA repair mechanisms, or apoptosis (Kiecolt-Glaser et al., 2002).

1-8. SOCIAL SUPPORT

Social support is a multi-dimensional concept (Cutrona & Russell, 1990; House, 1981; House & Kahn, 1985; Helgeson, 2002; Vaux, 1987) that has not been measured and defined in a homogenous way (Jackson & Antonucci, 1992). Kahn (1979) viewed social support as interpersonal transactions that include one or more of the following: the expression of positive affect (feeling liked or loved) of one person toward another; the affirmation (feeling appreciated or admired) or supporting and respecting another person's perceptions, behaviors, or expressed views and the giving of material such as money or symbolic aid to another. Aneshensel et al. (1995) defined social support as the degree in which a person's basic social needs are met through informal or formal social networks while enhancing health and well-being, regardless of their stress levels. In the social support literature, the terms social support and social network are often used interchangeably (Ell, 1996). The social network refers to a web-like structure comprising one's relationships (Hall & Wellman, 1985). This network includes family, neighbors, friends, employers.
relatives, fellow employees, professional networks, and groups with which a family shares common goals, interests, lifestyles or social identity (Friedman, Bowden & Jones, 2003).

The construct of social support is distinct from social integration (Schwarzer & Leppin, 1991a, 1991b). The term social integration refers to being embedded in a social network; as opposed to being socially isolated. The construct pertains to quantitative and structural aspects of social relationships, whereas social support pertains to qualitative and functional aspects. Indicators of social integration are marital status, number of relatives, friends and acquaintances or frequency of social contacts. Furthermore, social integration is an important condition for receiving any social support at all, since it requires social contacts.

Since the construct of social support is rather broad, and complex, a lot of research has worked on the question what specific conditions there are under which social support can unfold its beneficial effects. Research led to three important distinctions. First, the distinction among the different functions of support. Second, the distinction referring to the source of support. And last the distinction between the perception of support, and the actual receipt of support.

1-8-1-Functions of social support:

Pertaining to the classification of different functions of social support most of the researchers agree that there are three types of support, Emotional, instrumental, or tangible support and informational support (Cohen & Willis, 1985; Hamilton, 2004; Ryan & Austin, 1989; Tilden, 1985). Emotional support refers to personal behaviors such as having someone available to listen, to provide empathy, reassurance, caring, love and trust. Instrumental or tangible support is the result of concrete behaviors that help a person directly: the helping person intervenes personally in the problem.
situation and takes practical action such as help in household chores, giving a financial assistance, helping with work responsibilities or giving some other form of material aid. Informational support helps individuals by providing them with information, guidance or advice that they can use to cope and manage a stressful situation (Helgeson, 2002; Cohen & Willis, 1984). In other words, informational support is defined as a person receiving information about their specific needs or conditions (Hamilton, 2004). For example, providing someone with information; that means, telling someone the address of a famous doctor or giving good advice about what to do against a bad headache.

Although researchers have considered emotional support to be the primary component (Cohen & Hoberman, 1983; House, 1981; Schaefer, Coyne & Lazarus, 1981), at least as far as coping with serious illness is concerned the greatest beneficial effect depends on the situation-specific needs that arise (Cohen & McKay, 1984; Cohen & Wills, 1985; Cutrona, 1990). Conducting an investigation on heart attack patients and their spouses, Helgeson (1993), for example, found emotional support highly important during the onset of chronic illness for both patient and spouse; but after that, the kind of stress as well as the needs of patient and spouse diverge in a way that patients found informational support most helpful, whereas spouses found instrumental support most helpful to cope with their particular stressors. Therefore it depends on the situation which of the three kinds of support has the best effects (stressor-support specificity model, Cutrona & Russell, 1990).

1-8-2- The Source of social support

The source of social support is an important factor for the positive effects of support. Videka-Sherman and Lieberman (1985) demonstrated, for example, that the most beneficial source of support for parents coping with the loss of a child is the
spouse. On the other hand, spouse support in a situation of stressful problems at someone’s working place is not as helpful as support given by colleagues (Kobasa & Puccetti, 1983).

Social support has two sorts of effects: mediating and moderating effects (buffering effect) (Cohen & Wills, 1985; House, Landis, & Umberson, 1988). The mediating model proposes that social support functions as an intervening variable between the stressor and outcome (Quittner, Glueckauf, & Jackson, 1990). i.e. a direct effect of perceived or received support, for example improving well-being, or depression. The moderating effect proposes that support can buffer the effect of stress (Antonovsky, 1974; Caplan, 1974; Cassel, 1976 & Cobb, 1976) i.e it refers to resources that protect against the negative effects of stress by meeting specific needs that are created by a certain stressful event. In case of increased disease stress it might be a relief to have someone to take care of one’s children so that this act of instrumental support reduces the overall amount of stress and is thus beneficial, whereas the same kind of support would be negligible if no disease stress was present.

1-8-3-The active receipt of support and perception of support

It denotes two constructs that do not seem to be closely related (Dunkel-Schetter & Bennett, 1990; McCormick, Siegert & Walkey, 1987). Receipt of support is mainly assessed as a retrospective estimate of actually received help or support, whereas the perception of support pertains to a person’s estimate if in case certain help is needed there were someone to provide him or her with this kind of support.

Dunkel-Schetter and Skokan (1990) list three factors of a recipient that make it more easy for others to help: First, a mean level of stress in the person who needs help seems to evoke more support; if too much support is needed or if it is needed over an extremely extended period of time, potential sources of support will not be as willing
to provide someone with help. Second, the person in need should actively try to cope with his or her problems, and should also actively try to get support (Schwarzer & Weiner, 1990). Third, a recipient should have good personal resources such as self-esteem, competence, optimism, and/or an internal locus of control, since these characteristics make him or her more attractive for potential providers of social support (Hobfoll & Freedy, 1990).

On the part of persons who give support several cognitions and emotions were identified that are crucial. Among them, a prominent cognition pertains to the cause of a problem: Is the cause attributed to reasons that are controllable or uncontrollable for the recipient? For heart patients with an infraction, for example, there was found a correlation between controllability, and compassion of $r = 0.32$ (Schwarzer & Weiner, 1991). Thus, only if providers of support have the impression that the recipient could not help getting into trouble he or she feels compassion; this positive emotion influences the provider's intention, and may then lead to supportive behaviour (Weiner, Perry & Magnusson 1988).

Another important factor is the quality of the relationship between provider and recipient of support. If a person perceives a high degree of intimacy, and satisfaction in a relationship he or she will be more likely to help (Coyne, Ellard & Smith, 1990).

A lot of research has been done on the benefits of social support on physical and psychophysical well-being. Social support seems to be associated with lower cardiovascular reactivity (Kamarck, Manuck & Jennings, 1990), and it improves the immune system (Jemmott & Magloire, 1988; Kiecolt-Glaser et al., 1984; Kiecolt-Glaser et al, 1987; Kiecolt-Glaser et al, 1988). Moreover, it was found beneficial for recovery, and readjustment to serious illness (Dunkel-Schetter, 1984; Mumford,
Schlesinger & Glass, 1982; Trelawny-Ross & Russell, 1987; Wortman, 1984), and it even reduced mortality (Berkman & Syme, 1979; Blazer, 1982; Ruberman, Weinblatt, Goldberg & Chaudhary, 1984).

Research has indicated that group interventions have been successful for many populations in reducing psychological distress (Chujo, Mikami, Takashima, Saeki, Ohsumi, Aogi, Okamura, 2005). Group interventions have the best outcome when they are tailored to specific needs of the group (Fawzy, Fawzy, Hyun, Elashoff, Guthrie, Fahey, & Morton, 1993). Social support interventions are important because they provide individuals, especially those with chronic illnesses, with a way to communicate with others who have similar experiences. Johnson and Lane (1993) outline basic purposes of social support groups for cancer patients, including free expression of feelings about living with the disease, fostering of support with others, educating participants about the disease itself, and helping participants learn better coping skills. These purposes are relevant for most individuals with chronic disease.

### 1-8-4- Limitations

Although the term ‘support’ hints at a thoroughly positive resource, effects of social support can sometimes be negative. Not only to provide someone with a kind of support that is neither needed, nor desired can yield negative effects, also if support is not wanted by the recipient it may lead to an increase of stress, and a sense of forced helplessness or inferiority since the recipient might get the impression that others do not give him or her credit for solving problems by himself or herself.

A large social network means on the one hand that one would be provided with help if needed, on the other hand a person’s own problems might be multiplied, and stress might be increased since one is exposed to the social network members’ problems in addition, so that their stressors become one’s own stressors to a certain
extent, too (Lazarus & Folkman, 1984; Solomon, Mikulincer & Hobfoll, 1987).

Another negative aspect of social support is related to the principle of reciprocity (‘there is no free lunch’). In case someone only has few resources accepting social support may be a kind of luxury one cannot afford (‘the rich get richer, the poor get poorer’). Social support was found to be associated with strong positive effects for women with good resources such as education, income, and also favourable psychological characteristics, but none for those who lack these resources (Riley & Eckenrode, 1986; Solomon, Mikulincer & Hobfoll, 1987).