CHAPTER ONE

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1.1. Background of the Study

It is being increasingly realized that the well-being of a person cannot be conceived in exclusively dichotomized categories of physical and psychological health, without an integrated and holistic understanding of all the levels of human functioning the picture is vague and lopsided. Although the role of psychological factors in the development of physical diseases have been highlighted for a long time but real attention has been paid in recent times. Medical practitioners are accepting and appreciating the role of psychological and emotional factors in the manifestation of what was earlier considered a purely somatic disease. The area of health psychology has thus emerged highlighting an approach which integrates the psychological and organic viewpoints to the study of physical disorders. Thus more work on psychological correlates of diseases like coronary artery disease (CAD), peptic ulcers, cancer, diabetes etc. need to be conducted. The present chapter focuses on the levels of Happiness, Hope and Health Behaviour among Coronary Artery Disease and Cancer patients.

Appreciation of the relationship between psychological factors and physical disease is not very new. Psychosomatic medicine goes back to ancient times. In 2000 AD the Greek philosopher and physician Galen estimated that about 60% of his patients symptoms were derived from emotions rather than organic origin. Thomas Sydenham and William Harvey emphasized the role of psychological factors in physical disorders in the 17th century (Taylor 1980).
Explanation at the psychological level has been presented by psychoanalysts as well as learning theorists. The psychoanalytic viewpoint has been given by Alexander (1950). According to Alexander, various psychosomatic disorders are products of unconscious emotional states specific to each disorder for e.g. Alexander assumed that ulcer patients have repressed their longing for parental love in childhood, and that this repressed impulse causes the over activity of the stomach leading to ulcers. Physiologically, the stomach is continuously preparing to receive food, which the person has symbolically equated with parental love.

Undischarged hostile impulses are viewed as creating the chronic emotional state responsible for essential hypertension. Alexander thought that essential hypertension is caused by unexpressed anger or anger-in. The interdisciplinary approach to the treatment of physical disorders thought to have psychological factors as a major aspect of their causal patterns, broadly known as behavioral medicine (Gentry, 1984), is fast gaining popularity. The field includes professionals from many disciplines including medicine, psychology and sociology – who seek to incorporate biological, psychological and socio-cultural factors into the total picture. Its emphasis however is essentially on the role which psychological factors play in the occurrence, maintenance and prevention of physical illness. Therefore, it is only natural that psychologists have found this an area of major interest and as a consequence, an area referred as Health psychology has emerged. Health psychology is a sub-specialty within the behavioral medicine approach. Since the 1970s behavioral medicine and health psychology have highlighted the role of psychological factors in all facets of health and illness. Beyond studying the etiological role that psychological factors can play in illness, researchers in these fields study
psychological treatments (e.g. biofeedback for migraine headache) the maintenance and promotion of healthful behaviors (e.g. dietary change to reduce cholesterol intake and thus lessen the risk of heart attack) and the healthcare system itself (e.g. how to better deliver services to unserved populations) (Schwartz & Weiss, 1977, Stone 1982). A substantial body of research now indicates that Hope and similar dispositions (e.g. Optimism & Happiness) are associated with psychological and physical well-being (Farran, Herth & Popovich, 1995). It is therefore not surprising that a lot of attention is being focused by psychologists in this area.

1.2. Statement of the Problem

The topic of the present study is: "A study of Happiness, Hope, and Health Behaviour among Coronary Artery Disease (CAD) and Cancer patients".

Cancer and CAD are the major health problems throughout the world. India has the highest rate of cancer in the world. Data from population based registries under National Cancer Registry programme indicates that over 3 lakhs deaths occur annually due to cancer (NCRP 2002). It is estimated that by the year 2015, CAD will be the largest cause of disability and death in India. Six million people have coronary artery disease and five million rheumatic heart diseases (WHO 2003). Premature mortality among Indians is posing serious challenges to the economy. People suffering from such life threatening diseases may often be upset and depressed. 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). Research has found that psychosocial interventions may not only help the patients to reduce the stress but may also prolong survival in patients with CAD and Cancer. Positive thinking
of love, courage, optimism, purpose in life, HOPE and HAPPINESS not only add years to one’s life but also add life to one’s years. Positive emotions, feelings and a positive mental attitude can improve the quality of people’s lives and heal their bodies of illness and stresses (Wong, 1989). Positive feelings of Happiness and Hope are protective in developing serious ailments. Many clinicians and researchers have argued that positive feelings of hope and happiness are beneficial in treating serious medical illnesses such as Cancer (Irving, Snyder, & Crowson, 1998). Hope’s importance to health care is linked with an increased quality of life (Farran, Wilken & Popovich, 1992), less use of health care resources (Herth, 1989) and better health outcomes (Owen, 1989).

1.3. CORONARY ARTERY DISEASE (CAD)

Coronary artery disease is the leading cause of morbidity and mortality in most countries across the globe and it seems to spare no segment of the society. According to the World Health Organization (WHO), CAD is the leading cause of death in the world. It is called as “epidemic of modern times” more prevalent in developed world due to affluent life style and increasing life expectancy. The 20th century has witnessed its impact more in parts of less privileged developing countries. Today, CAD is looming in India also, affecting 2.5% of the entire population and it is expected that by the year 2020 it will be the leading cause of mortality and disability between the age 30 to 60 years (Gupta, 2001; Sethi, 2000). According to the latest report by a penal of experts from the WHO Indians have a 150% percent to 400% higher death rate from heart attack as compared to Americans, and Indian women are 8% more liable to develop cardiovascular problems than women from other parts of the world. The increase in CAD rates in India can be explained by epidemiological transition resulting in changes in life style,
urbanization, mechanization and dietary patterns (Yusuf, Onpuu & Anand, 1998; Rema, et al. 2001). WHO (1982) defines the CAD as “an impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes in the coronary circulation to the heart.” Coronary artery disease is our “modern epidemic” i.e. a disease that affects population and not an unavoidable attribute of ageing.

The following types of Coronary Artery Disease (CAD) are considered in the present study.

1.3.1. Angina Pectoris

It is defined as chest pain or discomfort of cardiac origin that usually results from a temporary imbalance between myocardial oxygen supply and myocardial oxygen demand. Angina pectoris is the medical term for chest pain or discomfort due to Coronary heart disease. It is associated with a disturbance of myocardial function but without myocardial necrosis. It occurs when the heart muscles do not get as much blood (hence, as much oxygen) as it needs, this usually happens when one or more of the heart’s arteries is narrowed or blocked. Insufficient blood supply is known as ischemia. Typical angina is uncomfortable pressure, fullness, squeezing or pain in the neck, jaw, shoulder, back or arm. It may occur with exertion or spontaneously at rest. Angina is a sign that the person is at an increased risk of heart attack, cardiac arrest and sudden death (AHA, 2002).

1.3.2. Myocardial Infarction (MI)

Myocardial infarction (MI) is the medical term for heart attack. MI occurs when there is an abrupt decrease in the blood supply to part of the heart muscle-the
Myocardium. This reduction or stoppage of blood supply happens when one or more coronary arteries supplying blood to the heart muscles are blocked. This is caused usually by atherosclerosis. If the blood supply is cut off for more than a few minutes, muscle cells suffer permanent injury and die. This can kill or disable someone, depending on how much the heart muscles are damaged. Sometimes a coronary artery temporarily contracts or goes into spasm. When this happens, the artery narrows and blood flow to the parts of the heart muscles decreases or stops. A spasm can occur in normal appearing blood vessels as well as vessels partly blocked by atherosclerosis. This causal mechanism of the spasm is not known, but a severe spasm can cause a heart attack. The first coronary presentation for women is more likely to be angina, whereas in men it is more likely to be myocardial infarction.

1.3.3. Congestive Heart Failure

Congestive heart failure (CHF) is a condition in which the heart's function as a pump is inadequate to deliver oxygen rich blood to the body. Congestive heart failure can be caused by:

1. Diseases that weaken the heart muscle,

2. Diseases that cause stiffening of the heart muscles, or

3. Diseases that increase oxygen demand by the body tissue beyond the capability of the heart to deliver adequate oxygen-rich blood.

Congestive heart failure can affect many organs of the body. For example, the weakened heart muscles may not be able to supply enough blood to the kidneys, which then begin to lose their normal ability to excrete salt (sodium) and water, this diminished
kidney function can cause the body to retain more fluid. The lungs may become congested with fluid (pulmonary edema) and the person's ability to exercise is decreased. Fluid may likewise accumulate in the liver, thereby impairing its ability to rid the body of toxins and produce essential proteins. The intestines may become less efficient in absorbing nutrients and medicines. Fluid also may accumulate in the extremities, resulting in edema (swelling) of the ankles and feet, eventually, untreated, worsening congestive heart failure will affect virtually every organ in the body.

1.3.4 Cardiac Arrhythmia

The term arrhythmia comes from the Greek word, loss + rhythmos, rhythm = loss of rhythm. In an arrhythmia the heartbeats may be too slow, too rapid, too irregular, or too early. Rapid arrhythmias (greater than 100 beats per minute) are called tachycardias. Slow arrhythmias (slower than 60 beats per minute) are called bradycardias. Irregular heart rhythms are called fibrillations (as in arterial fibrillation and ventricular fibrillation). When a single heartbeat occurs earlier than normal, it is called a premature contraction.

1.3.5. Risk Factors in Coronary Artery Disease

The American heart association (AHA 2007) lists 7 factors related to increase risk for CHD (1) age, (2) sex (males are at a greater risk), (3) cigarette smoking, (4) elevated blood pressure, (5) elevated serum cholesterol, (6) an increase in the size of the left ventricle of the heart as revealed by electrocardiogram and (7) diabetes. The risk of heart disease generally increases with the number and severity of these factors. However, Jenkins (1974) has concluded that these traditional factors leave at least half of the etiology of CHD unexplained. Noting this circumstance, cardiovascular researchers have increasingly turned their attention to possible non-biological contributions to the
disease’s development i.e. to psychological and personality factors. The factors can be grouped under the following headings:

1. 3.5.1. Constitutional Factors

(a) Age

The incidence of coronary artery disease increases with age. The onset of atherosclerosis starts in childhood with the formation of fatty streaks. It is a disease with its setting in pediatric age group where life style, habits etc. are conditioned. Recognition of existing risk factors in teens and early twenties and corrective life style modifications offers the greatest chance for prevention of the clinical disease.

(b) Sex

Men tend to suffer from coronary artery disease more often than women in younger ages. Women lag behind in incidence by ten years, but gap closes with advancing age. The frequency and severity of coronary artery disease in post-menopausal women increases rapidly. Once coronary artery disease appears the prognosis for reinfarction and death is poorer in women than men (Peel, 1955).

(c) Family History

Coronary artery disease is common when atherosclerotic disease is present in parents and siblings especially before the age of 55 years. Family history is frequently associated with other risk factors but is also an independent risk factor (Schweitzer et al. 1962).
(d) Personality Type

Certain personality types have been associated with propensity to coronary artery disease. Friedman & Rosenman (1974) identified a coronary prone behavior pattern “type A”. Type ‘A’ personality is manifested by exaggerated sense of urgency and competitive drive. This is associated with twice the expected rate of coronary artery disease. Among women this effect is experienced both by housewives and working women. Among men this effect is primarily noted in white collar jobs. Since the evidence linking Type ‘A’ behavior to CHD was overwhelming therefore in (1981) The American heart association decided to classify Type ‘A’ behavior as a risk factor for heart disease.

1. 3.5.2. Controllable Factors

(a) Hypertension

Raised blood pressure is the single most useful test for identifying individuals at a risk of developing coronary artery disease. In 95% of hypertensive’s the cause of hypertension could not be found despite extensive investigations and hence termed essential. Essential hypertension is particularly common in persons with family history of high blood pressure, blacks, obese, alcoholics, oral contraceptive users and those taking excess sodium (Wang et al., 2006). Cardiovascular mortality increases three fold at higher levels of blood pressure.

(b) Blood lipids

Blood lipids are central to the atherosclerotic process and constitute one of the chief risk factor of coronary heart disease. Diet rich in saturated fats and cholesterol result in elevation of serum cholesterol levels. The average adult cholesterol value of 225
mg% is well above optimal. This index alone increases the risk of coronary heart disease fivefold. Risk associated with cholesterol is lower in women and decreases with age.

(c) Obesity

Obesity independently has only a moderate impact as a coronary artery disease risk factor. The effect is largely mediated through its enhancement of other risk factors like hypertension, hyperlipidemia, diabetes etc. (Armstrong, Dublin, Wheatley & Marks, 1951). Obesity is often expressed in terms of body mass index (BMI). A BMI of 30 or more in males and 28.6 or more in females indicates obesity (WHO, 2000). Even mild obesity increases the risk of premature death. Diabetes Mellitus, hypertension, atherosclerosis, gall bladder disease and certain types of cancers (Surgeon General’s Report on Nutrition and Health, 1988). The effect of obesity is more significant in women than in men and decreases with age. Of the coronary artery disease manifestations angina pectoris and sudden death are more significantly related to obesity.

(d) Diabetes mellitus

Both independently and through its impact on other risk factors, diabetes exerts a major impact on cardiovascular risk. Diabetes mellitus imposes a two to three fold excess risk of coronary artery disease, more so in women, who are especially prone to coronary mortality, cardiac failure and stroke. Diabetes is also associated with hypertension, elevated low density lipoprotein cholesterol, reduced high density lipoprotein cholesterol levels which are all risk factors for coronary artery disease.
1.3.5.3. Life Style Factors

(a) Smoking

Cigarette smoking is a potent risk factor for both coronary artery disease and sudden death. The risk is most evident at youngest ages and becomes progressively weaker with increasing age. The level of coronary risk dose is dependent i.e. determined by the number of cigarettes smoked. Inhalation appears to be the requirement for the elevated risk. Men especially in younger age groups are more affected by smoking (Doll, Gray, Hafner & Peto, 1980). Cigarette smoking is also a strong risk factor in women as well (Dicks & Stone, 1978) specially those women using oral contraceptive pills. Cessation of cigarette smoking is probably the most direct and immediate means to achieve a significant reduction in one’s coronary risk profile.

(b) Oral Contraceptive

The use of oral contraceptive pills has been connected retrospectively and prospectively with the development of coronary artery disease. Oral contraceptive Study (Royal College of General. Practice, 1974) and Oxford Study in UK (Vessey, 1971; Vessey & Mann, 1981) provided conclusive evidence that the use of combined pill was associated with an excess mortality, with a 40% higher death rate than in women who have never taken the pill. The evidence was convincing that the complications were associated with the estrogen content of the pill. Later progesterone was also implicated and its content in the combined pill was also reduced along with the estrogen content of the pill. Women using pills require appropriate monitoring so that those who demonstrate deterioration of their cardiovascular risk profile can be properly treated and afforded alternate methods of contraception.
(c) Physical Activity

Epidemiological studies suggest that greater physical activity may protect against coronary artery disease. Regular exercise will improve cardiovascular functional capacity and decrease myocardial oxygen demand for any level of activity. Sustained activity for 20 to 30 minutes at least 3 days a week is necessary to achieve a substantial fitness level and protective effect. Aerobic exercises (e.g. walking, running, cycling, and swimming) are beneficial while isometric exercises may actually be harmful (Dishman, 1994).

(d) Coffee

Some hemodynamic stimulation results from caffeine containing beverages, which has led to the hypothesis that caffeine, may contribute to the development of coronary artery disease. Prospective studies have failed to show significant increase in coronary events associated with coffee consumption especially if cigarette use is taken into account (Yano, Rhoads & Kagan, 1977).

(e) Stress

Persistent stress due to low social class, lack of control in one's job, job strain (defined by high psychological demands and lack of control) and certain enduring dispositional attributes are believed to affect arterial lesion progression and the development of coronary artery disease over time (Cohen, Kaplan & Salonen, 1999; Everson et al., 1996). A considerable body of research supports the association between competitiveness, and direness and the development of CHD (Matthews, 1988).
Stressors in the social environment, recurrent hostility and a hard driving disposition leads to elevation in cortisol and sympathomimetic neuromediators and appear to facilitate the development of CAD and atherosclerosis.

(6) Negative Emotions and Heart Disease

Prospective studies have shown that men and women who experience chronic high levels of hostility, depression or anxiety are more likely than others to develop heart disease and hypertension (Weidner, et al. 1986). The link between negative emotions and heart disease involves two avenues. First, people tend to have less healthful lifestyles when they experience negative emotions. Second, negative emotions have physiological effects that promote heart disease. Some of the clearest physiological links have been shown among people with the Type A behavior pattern. When in stressful situations, Type A individuals – particularly those who experience frequent high levels of anger and hostility – often show high physiological reactivity, which includes increased blood pressure, catecholamine and corticosteroid levels (Smith, 1992).

Type A people chronically produce high levels of catecholamine’s and corticosteroids, especially when under stress (Pope & Smith, 1991; Suarez & Blumenthal, 1991). Chronic high levels of these hormones in the blood can damage the heart and blood vessels. Evidence now suggests that epinephrine (a catecholamine) increases the formation of platelet clots in the blood, which can block arteries and cause a heart attack (Markovitz & Matthews, 1991).
1.4. CANCER

Cancer is often viewed as an acute and usually fatal disease. It’s the disease most people fear most. The word ‘cancer’ comes from the Greek word for crab ‘Karakmos’. The ancient Greek physician Hippocrates who first described cancer about 2500 years ago noticed that some malignant tumor resembles 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) tumors tend to remain localized and usually do not pose a serious threat to health. In contrast malignant (cancerous) tumors consist of renegade cells that do not respond to the body’s genetic controls on growth and division of cells.

A basic characteristic of life and growth is that body cells reproduce in an orderly and controlled fashion. Normal cells of most tissues divide only to replace dying cells or to repair injuries in a controlled manner. Irregularities in this process can cause unrestricted cell growth, usually forming a tumor called Neoplasm (American Cancer Society (ACA), 2003, Tortora & Grabowski, 2003) Cancer cells continue to grow and divide in an uncontrolled manner. Cancer cells can accumulate to form tumors that may compress, invade and destroy normal tissue. An important characteristic of cancer cells is that they do not adhere to each other as strongly as normal cells. As a result they may break away from a tumor and get into the blood stream or lymph system and 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 catmints (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 and the large majority can be classified into 5 types based on the kind of tissue in which it develops (Tortora & Grabowski, 2003)

**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, which 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.

Melanomas: or neoplasm of a special type of skin cell that produces the skin pigment called melanin.

1.4.1.1 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 (hemoplysis).

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 perverse post menopausal 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. 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 ophorectomy at a young age appear to have a smaller risk of this disease.

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 per cent 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 diarrhea, 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 some time. The best prospect for an early diagnosis lies in regular physical examinations that include stool testing or blood and proctoscopic examination.

**Prostate Gland Cancer:** Prostate 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 symptoms 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 ill, 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.
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 chance 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: This type of cancer attacks the blood-forming tissues, such as bone marrow. Leukemia leads to a proliferation of white blood cells in the blood stream 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) (National Cancer Institute 2001).

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.

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 (ACA, 2003) 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 (Ogden, 1996). 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 behaviours can be predicted by examining individuals’ health beliefs.

Stress: It has also been shown that stress has a role to play in cancer. Laudenslages, Ryan, Drugan, Hyson and Mairr (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, and 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 reaction 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, Graves, Swank and Pearson (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 and its link with the onset or progression of cancer (Bleiker, 1995; Eysenck, 1994; Greer & Morris, 1975).

1.4.4. Psychological Impacts of Cancer

Cancer has historically been viewed as an acute and usually fatal disease. 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. Mullan (1985) 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 al., 1998).

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, 1990).

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 (Montgomery & Bovbjerg, 2004).

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, psychoeducational 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.

1.5. HAPPINESS

The constitution only gives people the right to pursue happiness. You have to catch it yourself (Benjamin Franklin, Benjamin Franklin quotes, n.d).

Happiness comes from spiritual wealth, not material wealth. Happiness comes from giving, not getting. If we try hard to bring happiness to others, we cannot stop it from coming to us also. To get joy, we must give it, and to keep joy, we must scatter it (John Templeton, Heart quotes, n.d).

Research on happiness is relatively new in psychology but has taken off very quickly and produced a flood of research papers, several conferences and some books.
Human happiness has appeared again and again as the most valued of all human quests. Efforts to understand human happiness have absorbed a lot of thought. "Happiness" was a major issue in early Greek philosophy and several later philosophical schools. Currently, the subject is gaining a lot of attention in social sciences. The question then arises - What is happiness? People talk about how happy (or unhappy) they are feeling all the time, but are unable to define it. For Plato (427-347 B.C.), happiness is harmonious functioning of man's soul. It is subordination of the lower to the higher, of non-rational to the rational. Cicero (106-42 B.C.) in the book 'The Pursuit of Happiness' stated that happiness of life were more of mind and less of the body. He believed that, "there is no fool who is happy and no wise man who is not." In Indian Mythology, The Bhagwat Gita preaches happiness to be the very nature of self. It cannot be derived from any object in the world.

Happiness is primarily a subjective phenomenon "for which the final judge is who ever lives inside a person's skin" (Myers & Diener, 1995). It is a state of mind or feeling such as contentment, satisfaction, pleasure or joy. A variety of philosophical, religious, psychological and biological approaches have been taken to defining happiness and identifying its sources. Philosophers and religious thinkers have often defined happiness in terms of living a good life, or flourishing, rather than simply as an emotion. The ancients believed happiness was not achieved, but either God given or due to chance. If happiness was experienced, it was not a function of the individual but rather was generously bestowed upon them by the cosmos. At some point in time happiness did change from a divine gift to a self-evidence truth. Enlightenment thinkers believed that happiness could be attained in this life. If one was not happy, the logic went; the
prescription was to alter one’s beliefs, customs and governance or living conditions.

Happiness, many maintain, is about feeling “good”. However, happiness is not solely synonymous with intense pleasure that is too shallow a conceptualization. Happiness is much deeper.

Aristotle’s notion of eudaimonia is an example. Eudaimonia i.e. (happiness) comes from the Greek en (good) and daimon (god, spirit and demon). Aristotle maintained that eudaimonia comes from identifying one’s virtues, cultivating them, and living life in accord. Happiness is beyond feeling good, it is about doing good. Cicero believed that “Gratitude is not only the greatest of virtues, but the parent of all others” (world of quotes. com, n.d) Happiness is a natural by product, a gift in itself.

As per the Webster’s third International Dictionary “Happiness is a state of well-being characterized by relative permanence, by dominantly agreeable emotion ranging in value from mere contentment to deep and intense joy in living and by a natural desire for its continuation.”

Bertrand Russell, winner of a noble prize while writing on “the conquest of happiness” (1930) observed that there are many determinants of unhappiness but happiness is still possible if one thinks of positive attributes and practice them.” Robin Sharma (2003) in his famous book on “the Monk who sold his Ferrari” tells that “happiness is a journey not destination. Live for today – there will never be another one quite like it.” Thus it can be said that happiness is a long lasting enduring enjoyment of life, it is being in love with living.
1.5.1. Psychological Perspective

The search for happiness is not new and neither is academic interest in the topic. In 1776 the American declaration of independence argued for “certain inalienable rights that among these are life, liberty and the pursuit of happiness” (David, 2007). In recent survey (Easton, 2006) found that 81% of the U.K. population agreed that the Government’s primary objective should be the creation of happiness not wealth.

David Cameron, HM leader of opposition, puts happiness firmly on the political agenda by arguing that “It’s time we admitted that there’s more to life than money, and it’s time we focused not just on GDP but on GWP (General Well being)” (BBC, 2006).

It seems that the current political and media interest in ‘happiness’ has to a large extent been provoked by a surge of research interest in positive psychology (Diener, 2000). Indeed psychologists have led the call for measures of subjective well-being (SWB) to form the basis of Government policy and the political assessment of a Nation’s Success (Diener & Oishi, 2000).

Though research on happiness is relatively new in psychology but has taken off very quickly and produced a flood of research papers, several conferences and some books. Some psychologists define happiness in terms of positive emotions – joy, fun, euphoria – others in terms of satisfaction and contentment with life as a whole, job, spouse, home and so on, a reflective state of mind”. Happiness includes both these components. Happiness can also be defined as overall satisfaction of life. In Pirsig’s words (1974) ‘when we know what gives people happiness, we know the meaning of quality of life.’ QL is also measured in terms of how happy a person is. Happiness not only reflects to material well-
being but is also concerned with personal judgments in economic matters, family considerations and health (Easterlin, 1973). Ross translated the term ‘Eudaemonia’ as happiness pointed out that it is probably better translated by a more neural term well-being. Jahoda (1958) noted that happiness is one of the criterion frequently used in notions of positive mental health but argues that it cannot be a sufficient criterion because there are some situations in which being happy would be inappropriate and a sign of psychological disturbance. The self rating of happiness could be used to measure the levels of subjective adjustment and demonstrated how happiness ratings were related to other measures of life problems (Gurin, Verof & Feld, 1960). Several studies such that of Bradburn (1960), Warr (1978), Fellows (1956), Shin and Johnson (1978) all have found that self-reports of happiness are meaningfully co-related with other indicators of psychological well-being such as social adjustment. Thomas Szasz quoted (Winokur, 1987) that “happiness is an imaginary condition formerly attributed by the living to the dead how usually attributed by adults to children and by children to adults.”(p.133).

According to Bertrand Russell (1930) happiness depends “more than anything else upon what may be called a friendly interest in person’s and things.” He argued that to achieve happiness, one’s passions and interests must be directed outwards, not inwards, it was too important to avoid self-centered passions.” Thus happiness remains at centre stage in most social scientific efforts to monitor subjective well-being (Myers & Diener, 1995).

Eysenck (1983) clearly noted that “happiness is a thing called stable extraversion…. The positive affect in other people…. Then it only makes sense that happiness can be associated with extraversion.”
Seligman (2002) proposed a theory of happiness similar to Aristotle’s ‘eudaemonia’. According to Seligman ‘authentic happiness’ is achieved upon identifying and cultivating one’s signature strengths (e.g. curiosity, vitality, gratitude) daily in work, love and play. Three distinct paths exist. The pleasant path involves experiencing positive emotions about the past (e.g. forgiveness, contentment), present (e.g. joy, ebullience) and future (e.g. optimism hope). The “full life” is realized when one is fully engaged on all three paths. In his highly valued and quoted book “Authentic happiness” (2002), he commented that truly happy people have a full life which is fulfilling at three levels: the pleasant life, the good life and the meaningful life. Thus he identified 3 forms of happiness.

The Pleasant life: The significant factor in having a pleasant life is to develop the necessary character. Character development is the crucial factor here, especially regarding the attitude towards the past, the future and the present.

The Good Life: To enjoy a good life, enriching relationships and a positive attitude towards one’s work, we require developing specific human qualities. These qualities are divided into six larger categories including courage, wisdom, compassion, spirituality, moderation and a sense of justice.

Meaningful life: We need to find out why we do what we do. What do we believe in? How do our daily actions fit into the grand scheme of things? Once we have found the real purpose of our lives and find that there is meaning in everything we do, our life becomes meaningful than hedonic pleasures. If it is also pleasant and good, then we have a full life.

Another conceptualization of happiness comes from the work of Ed. Diener.
Happiness which he calls ‘subjective well-being’ is comprised of 3 components – (a) frequent positive affect, (b) infrequent negative affect, and (c) high life satisfaction (i.e. the cognitive component). Though related these three components appear independent.

The certain aspects of happiness are as follows:

**Stability:** Longitudinal investigations have shown that people tend to stick to their happiness judgment once forward. However, happiness judgments are not necessarily stable through time.

**Definiteness:** Only when people decide whether to judge their life’s favorably or not, the concept of happiness applies. Therefore, happiness judgments can vary in definiteness.

**Time emphasis:** Happiness is an evaluation of life as a whole. The judgment may cover not only the present, but also draw on the past or anticipate the future.

**Consciousness:** Happiness is a state of consciousness or to put it differently happiness denotes what the person “really” believes.

**Appropriateness:** The degree to which the subjective evaluation fits with the given standards of good life is also a variable aspect of happiness.

Argyle, Martin and Crossland (1989) believed that happiness is composed of three related components: positive affect (pleasant moods and emotions) absence of negative affect (unpleasant moods and emotions) and satisfaction with life as a whole.
1.5.2. Correlates of Happiness

The following are the causes, various demographic and environmental correlates which affect happiness at varying levels:

**Gender:** It has often been observed that males occupy a privileged position in most societies. However, Michalos (1991) studied 18,000 college students in 30 nations and found very small sex differences in life satisfaction and happiness. Although men did not report higher SWB than women, men and women who are independent, confident and decisive have higher SWB. Another finding brings out that within sex, women report more negative affect and depression than men and are more likely to seek therapy for this disorder, yet men and women report approximately same levels of global happiness.

**Income:** Income is generally seen as an important source of happiness. However, the studies done in this field bring out a different picture. According to Myers (2000), in nations where Gross National Product is greater than $ 8000 per person, there's no correlation between National Wealth and Happiness of citizens. The relation between national wealth and SWB may be due, in part, to other benefits received by people of wealthier countries. People with substantial income agree that money can make them happy and unhappy, depending to how it is viewed. Hence the direct effect of wealth itself may not be the only determining factor as money can buy a degree of happiness. On average, wealthier people are happier, but the link between money and happiness is complicated.

"Money buys status and status makes people feel better" - Says Andrew Oswald, a U.K. economist. This helps to explain why people who can seek status in other ways may happily accept relatively poorly paid jobs.
Education: Learning makes for happiness because it is through learning that we influence the environment instead of being dominated by it and that we discover and develop the best in ourselves (Rodgers & Groombridge, 1976).

Marriage: Positive relation between marriage and happiness/subjective well being has been reported in international studies (Diener & Suh, 1997; Mastekasa, 1995). Marriage and SWB correlate significantly even when age and income are controlled (Gove, Hughes & Style, 1983). It is believed that marriage serves as a buffer against hardships of life and provides emotional and economic support which produces positive states of well-being (Coombs, 1991). Another explanation is that the married people live up to current social role expectations and are hence more likely to receive “social acceptance” than the unmarried people.

Work: Work is thought to be related to happiness because it offers an optimal level of stimulation that people find pleasurable (Csikszentmihalyi, 1990), positive social relationships and a sense of identity. In other words, apart from determining one’s living conditions to some extent (income, social milieu, etc.), work is claimed to bring ‘rewarding contacts’ and enhance ‘sense of meaningfulness’.

Health: Besides external living conditions, happiness also depends on internal individual characteristics. Individuals with a severe disabling condition may report low SWB (Mehnert, Krauss, Nadler & Boyd, 1990). Physical attractiveness has also been found to generate greater happiness (Agnew, 1984) since it produces popularity with opposite sex and employers and is a source of upward mobility (Argyle, 1994). So perhaps beautiful people are happier because they are healthier.
Competencies: Intelligent people are expected to be happier so far as intelligence is a key to social success. Studies have found very small, but positive correlation between competency of intelligence and happiness. Diener and Seligman (2002) have said that it is ‘social intelligence’ that could be the real key to happiness. Further, Holmes et al. (2004) found more social skills among extroverts as one of the reasons for their happiness. Social skills improve the probability of attaining desired relationships with others, hence leading to happiness.

Life Events: Kanner, Coyne, Schaefer and Lazarus (1981) reported that the frequency of daily positive events correlates with positive affect at .33. Old people reported positive emotions just as often as young people but negative emotions much less frequently (Holmes, Kleiner, Douglas & Bond, 2004). It was suggested that older people may expect life to be harder and learn to live with it and are more realistic about their goals, with time running out they have learnt to focus on things that make them happy and let go of those that don’t.

Religion: Religion can be an aid for psychological functioning. This has made various investigators expect that believers to be generally more satisfied with their life than non-believers. The reason may be that religious experiences offer a sense of meaning in daily life (Pollner, 1989). Moreover, religion offers social fulfillment through exposure to social networks composed of people who share similar attitudes and values (Taylor & Chatters, 1988).

Leisure: The distinction between work and leisure is quite subtle, since they may involve exactly the same activities: digging the garden, driving a car, decorating rooms, looking after other people, for example, may be either work or leisure. Some of the main
differences are that leisure is more autonomous, although less when done in a group, there is little or no supervision, the product, if any, is one’s own property, and there is little or no material reward. Leisure defined as ‘life outside work’ was one of the best predictors of overall satisfaction.

**Personality:** Are there happy people? We have seen that circumstances and activities affect happiness, but are there individuals who are consistently above or below average, as there are people who are depressed? Research shows very clearly that there are happy people.

Several aspects of personality are related to happiness, though less intensive research has been done on them so far. These are:

1. **Attribution style:** Depressed people blame themselves for bad things that happen. However, this is not so much a cause of depression as an effect of it. Happy people attribute good events to themselves, not bad ones, but we don’t know the direction of causation yet (Argyle & Crossland, 1987).

2. **Positive thinking:** Depressed people ruminate about unhappy things; if happy things come to mind they wonder how they might go wrong. Happy people ruminate about good things; if bad things come to mind they wonder how to put them right (Argyle, Martin & Lu, 1995). Happy people have an optimistic, rosy view of life; they recall good things in the past, expect good things to happen in the future, think well of themselves, and of others. This may be a cause of happiness, or simply part of it.

3. **Internal control:** This is important for health and mental health, and is also important for happiness. Individuals with good resources of various kinds are a
little happier: there are small effects of intelligence, physical attractiveness, education and so on.

4. Neuroticism is a strong predictor of unhappiness. It has little effect on positive affect but influences negative effect, and it also reduces satisfaction. And it does so by leading to adverse events, especially over work and money, just as extraversion leads to favorable events (Headey & Veenhoven, 1989).

5. Religion and politics: Modest correlations are found between happiness and church attendance. Rather more important is a sense of inner meaning of life. Freedman (1978) described cases of successful and prosperous people who did not have this, and asked themselves, ‘Why am I doing all this?’, ‘What is it all for?’ People with radical, revolutionary political attitudes are a good deal less happy than others (Harding, 1985).

   From the above discussion, it can be concluded that causes and correlates of happiness are interrelated and have been shown to be complex. There is not one cause of happiness, rather, genetic, situational, personality, cultural, coping strategies, and goals must be integrated.

1.5.3. Biological Basis of Happiness

   Are our brains “hardwired” for happiness? That is, does happiness have a biological basis, rooted in the evolution of the nervous system? Neuroscientist Richard J. Davidson (2003) observed that the word happiness “is a kind of a place holder for a constellation of positive emotional states. Of all the emotions, happiness is the One that scientists least understands.”
The first real breakthrough came in 1950s, when American psychologists Olds, and Milner (1954) discovered what they named the “pleasure centers in the brain.” When the cortex receives and processes a sensory stimulus indicating a reward, it sends signal to the ventral segmental area (VTA) in the midbrain. The ITA then releases dopamine not only into the nucleus acumens, but also with the septum, the amygdala, and the prefrontal cortex. What is the secret to the behavior elicited by the stimulation of the nucleus acumens? The answer is dopamine which is a neurotransmitter, a chemical substance released by neurons at their synaptic connections to other neurons in the brain. The first neurotransmitter has been found to be associated with positive emotions and feelings and therefore happiness.

The second breakthrough came in when Synder (1976) and Pert (1999) (both American neuroscientist) discovered that our brains produce endorphine. When released by the pituitary gland and the neurons in the hypothalamus, endorphine suppress pain and stimulates pleasurable feelings that accompany behaviour such as eating chocolates, laughing, smiling, touching, meditating, singing, listening good music etc. Thus, we know that happiness is associated with brain endorphins and the neurotransmitters dopamine and serotonin, which can be stimulated by hormones like adrenaline.

In 1990s Antonio Damasio first using positron emission tomography (PET) discovered that positive and negative feelings are both generated and processed by different parts of the human brain. Happiness activates the right posterior cingular gyrus, as well as the left insula and the right secondary sensorimotor cortex. Sadness decreases activation in these regions. Other structures in the basal region of the brain, such as the pons were activated in sadness but not in happiness. These Brain Imaging studies prove
to be very useful understanding brain basis of positive emotions such as happiness. Davidson (2001) also reported that the left side of the prefrontal cortex seems in general to be associated with negative emotions while the right side associated with positive emotions (subjects either watching happy video clips or meditating). Swanson (2000) has found growing evidence that the brain is hardwired for happiness via-goal seeking behavior. The individual propensity for happiness also depends on our genetic heritage. Both innate temperament and negative early experiences in life such as traumatic stress, and abuse are also extremely influential. We cannot change our genetic makeup, individual past. Behavioral sciences have developed many ways (cognitive behavior therapy, meditation etc.) of correcting and even healing detrimental influences of those factors on happiness.

Neuroscience thus has a crucial part to play in our understanding of well-being or happiness. However “the systematic training of the mind – the cultivation of happiness, the genuine inner transformation by deliberate selecting and focusing on positive mental states and challenging negative mental state – is possible because of the very structure and function of brain. But the wiring in our brain is not static nor irrevocably fixed. Our brains are adaptable. Much like computers, our brain does what they do through a combination of hardware neuroanatomical structures and software (cognitions and chemicals). Even if the hardware constraints how we think and who we are, we can always change software, reprogramming our minds at least in theory to make our lives happier and more fulfilled.
1.5.4. **Spiritual Approaches to Happiness**

**Buddhism and Happiness**

Wallace and Shapiro (2006) recently observed that the Buddhist tradition has focused for over 2500 years in cultivating exceptional states of mental well-being as well as identifying and treating psychological problems. Recent research in neuroscience is the beginning to show support for Buddha’s theory of happiness. For instance, Davidson (2001) found that novice meditation practice was linked with significant greater activity in the left prefrontal cortex, an area of brain associated with positive emotion. They further supported it while examining the effects of mindfulness meditation on brain activity as well as psychological and immunological functioning.

According to Buddhism, mental suffering is due in large part to imbalances of mind. Sayings of Buddhists (Dhammpada) are important in understanding the nature of happiness described under the heads of (1) The twin-verses (2) Awareness (3) Joy and (4) Pleasure.

**Bhagvad Gita and Happiness**

One of the greatest contributions of India to the world is Holy Gita. The Bhagvad Gita can be experienced as a powerful catalyst for transformation. It means song of the Spirit, song of the Lord. It contributes to self reflection, finer feeling and deeper once inner processes. How life in world can become real education-dynamic, full and joyful no matter what the circumstances. What makes the Holy Gita a practical psychology transformation is that it offers us the tools to connect with our deepest intangible essence and we must learn to participate in the battle of life with right knowledge?
Gita tells us how to get out of unhappiness or dissatisfactions of life by cultivating and philosophy of life; identifying with inner core of self-sufficiency; striving for excellence through work is worship; building up an internal integrated reference point to face contrary impulse, and emotions and pursue ethico-moral rectitude (Ganguli, 2009).

1.6. HOPE

A dictionary definition of hope is "a desire and the confident expectation of its fulfillment". Fascination with the phenomenon of hope dates back to the Bible. Hope for a better future and salvation is a hallmark of the scriptures. St. Paul characterized hope as the essence of faith (Romans 8: 24-25, New International version). In the 17th century, a Dutch philosopher and theologian, Baruch de Spinoza, defined hope as a joy that comes from past or future images when something is in doubt. (The encyclopedia of positive psychology 2009) In the late 20th century, theoretical and scientific interest in the concept of hope has developed among investigators and clinicians in psychology, medicine and nursing.

Previous scholarly writings have defined hope as a “unidimensional construct involving an overall perception that goals can be met (French, 1952; Lewin, 1935; Stotland, 1969).

Hope is defined as “the process of thinking about one’s goals, along with the motivation to move towards those goals (agency) and the ways to achieve those goals (pathways)” (Snyder, 1995).

“Hope is the perceived capability to derive pathways to desired goals, and motivate oneself via agency thinking to use those pathways” (Snyder, 2002). Snyder et al.
(1997) suggested that hope also seems to be the most powerful motivator. It was also endorsed by him that high hope is related to greater problem solving ability, perception of scholastic competence, social acceptance and athletic ability. More specifically, Snyder Irving and Anderson (1991) defined hope as “cognitive set that is based on a reciprocally derived sense of successful (a) agency (goal directed determination) and (b) pathways (planning of ways to meet goals).”

According to Snyder (2000) hope has 3 necessary ingredients:

**Goal-oriented Thoughts**

Non-random human behaviors are directed by some goal, either short-term or long-term. Goals need to be of sufficient value to the Individual so as to occupy conscious thoughts. Goals should be attainable yet challenging in nature. Goals that are 100% likely to be achieved do not give people hope.

**Pathways to Achievement**

In order to achieve goals people need to generate plausible routes to achieve goals. This type of thought processes begin in infancy when cause and effect relationships are first being understood. Singular or multiple pathways need to be generated when obstacles are faced. Those with the highest levels of hope tend to generate multiple pathways to goal achievement.

**Agency Thoughts**

In this motivational component to hope, people believe that they can initiate and sustain the pathways to goal achievement. This type of thought begins after one year of
age when children realize they are actors who can influence their environment and initiate cause and effect relationships.

Although there are a variety of conceptualizations of hope, there is agreement on the essential characteristics of the concept. Hope, a factor in coping, if future oriented and considered to be multidimensional by most theorists. It enables an individual to cope with a stressful situation by expecting a positive outcome. Because a positive outcome is expected, the individual is motivated to act in the face of uncertainty. There are differences in conceptualizations with regard to whether hope has both state and trait components, whether it exists on a continuum with hopelessness and whether it is an antecedent, a strategy or an outcome of coping (Raleigh & Boehm, 1994).

Hope is rarely discussed without considering hopelessness and vice versa. In the psychology literature, many authors have linked hopelessness with negative emotions. Some such as Beck (1963, 1967) and Bernard (1977) identify hopelessness as a core characteristic of depression and suicidal behaviour (Abramson, Metalsky & Alloy, 1988; Beck, 1972; Beck, Kovacs & Weissman, 1975). Bernard hypothesized that hope, like depression, may originate from “heredity, physiology and health environment, and personal and individual orientation – especially the orientation of responsibility.” Other authors consider hope and hopelessness to be related but nonlinear concepts (Farran, Herth & Poporich, 1995) and to exist simultaneously in the same individual (Dufault & Martocchio, 1985). Still others think hope and hopelessness are on a continuum (Stotland, 1965). As a result various models of hope emerged.
1.6.1. Stotland’s Model of Hope

The publication of Ezra Stotland’s book, *The Psychology of Hope* (1969), revolutionized the discussions regarding the concept of hope. Prior to this book, many investigators considered hope and hopelessness to be vague and indistinct concepts that prohibited quantification and systematic study. Through a review of the literature, Stotland developed a theory that portrays hope as an expectation of future goal attainment that is mediated by the importance of the goal for the individual and motivates action to achieve the goal. Expectation of goal attainment and importance of the goal are determinants of motivation. The greater the expectation and the greater the importance of the goal to the individual, the greater will be the effort to achieve the goal. If the goal is important and the individual perceives a low probability of attaining it, anxiety will be experienced. Because there is motivation to avoid anxiety, the greater the anxiety, the more the individual will be motivated to escape it. Hope is a component of adaptive action in a difficult situation, and hopelessness is a factor in maladaptive behaviour.

1.6.2. Miller’s Model of Hope

Miller (1992) states that hope is a complex multidimensional construct. It is more than goal attainment; it encompasses a state of being. It involves a confident expectation of an ongoing good state or liberation from a difficult situation. Hope exists at three levels. The first level focuses on superficial wishes, is characterized by shallow optimism, requires little psychic energy to maintain, and produces no despair when it is not actualized. The second level focuses on hoping for relationships, self-improvement, and personal accomplishments and involves greater psychic energy than the first level. If these hope are not actualized, anxiety results. The third level is related to a desire for
relief from suffering, personal trial, or entrapment and involves a total dedication of psychic energy. If the individual perceives that relief is not impending, deep despair or giving up occur.


1. Mutuality and affiliation pertain to interpersonal relationships and the experience of unconditional love.

2. Sense of the possible involves a global attitude that there is potential in life.

3. Avoidance of absolutizing entails allowing flexibility in one’s expectations and avoiding an all-or-nothing attitude.

4. Anticipation embraces the confident expectation of some future good combined with acceptance of the need to patiently wait.

5. Establishing and achieving goals are the “objects of one dimension of hope”.

6. Psychological well-being and coping are factors that empower the individual to have the necessary psychic energy.

7. Purpose and meaning in life give the individual something to live for and to receive a sense of satisfaction with life.

8. Freedom is the ability to recognize that the individual can impact an outcome and maintain a positive attitude.

9. Reality surveillance involves cognitive tasks designed to obtain information that confirms the reality of the hope.

10. Optimism is essential for hope.
11. Mental and physical activation encompasses energy that is used to counteract apathy of despair.

The Miller Hope Scale (MHS; Miller & Powers, 1988) was derived from Miller’s conceptualization of hope.

Miller’s (1992) model of hope focuses on definitions of concepts related to hope with a few statements of relationships among the concepts. This reduces its ability to explain, predict, or control phenomena. Miller’s model has proved to have limited usefulness to researchers who used the MHS but chose to use another conceptual framework. It is broadly generalizable to many populations and situations and has been used with various groups including college students (Miller & Powers, 1988), elderly (Beckerman & Northrup, 1996; Fehring, Miller & Shaw, 1997), the chronically ill (Herth & Stewart, 1994; Miller, 1992), the critically ill and their spouses (Miller, 1989). It lacks parsimony in that it uses many concepts and unclear relationship.

1.6.3. Self-Sustaining Process Model

Hinds and Martin (1988) used the ground theory approach to develop a definition of hope and the Self-Sustaining Process model. Grounded theory approach is an inductive research technique first described by Glasser and Strauss (1967). A theory evolves from the research process that involves formulation, testing and redevelopment of propositions.

According to Hinds (1984, 1988a), hope, for adolescents, is defined as “the degree to which an adolescent believes that a personal tomorrow exist.” There are four hierarchical levels of believing in this model: (a) forced effort, (b) personal possibilities, (c) expectation of a better tomorrow, and (d) anticipation of a personal future.
Hinds and Martin (1988) conceptualized the Self-Sustaining Process by which adolescents help themselves achieve hopefulness during their illness experience. This process involves four sequential phases. The first phase of the Self-Sustaining Process is cognitive discomfort ($T_1$), the degree to which mental uneasiness is experienced. The second phase is distraction ($T_2$) in which the negative thoughts are replaced with neutral or positive thoughts and conditions through cognitive and behavioral activities. The third phase is cognitive comfort ($T_3$). The fourth phase is personal competence ($T_4$) (Hinds & Martin, 1988).

Hinds and Martin (1988) concluded that the Self-Sustaining Process is variable in that it can occur in minutes or weeks. Some phases take longer than others and may be bypassed. They also found positive relationships among the concepts.

The Self-Sustaining Process (Hinds & Martin, 1988) provides an understanding of hopefulness in adolescents that shows promise for description, explanation, prediction, and control. The model is logically adequate in that relationships are clear and predictions can be made from it. It is narrowly generalizable to the adolescent population, and it has parsimony in that it can be described using relatively few concepts and relationships.

1.6.4. Dufault and Martocchio's Model of Hope

Dufault and Martocchio (1985) also used the grounded theory approach to develop a conceptualization of hope. The researchers described their methodology as "participant observation in multiple settings". Hope is defined as "a multidimensional dynamic life force characterized by a confident yet uncertain expectation of achieving a future good which, to the hoping person, is realistically possible and personally
significant”. Dufault and Martocchio describe hope as a process and not as a trait. It has two spheres and six common dimensions.

The spheres are generalized hope and particularized hope. Generalized hope relates to a sense of an indeterminate future good. Default and Martocchio (1985) noted that “generalized hope protects against despair when a person is deprived of particular hopes and preserves or restores the meaningfulness of life – past, present and future in circumstances of all kinds”. Particularized hope focuses on a specific hope object that “may be concrete or abstract, explicitly stated or implied” and stimulates coping with obstacles and strategies for attaining the hope object.

Dufault and Martocchio (1985) described the following dimensions of hope: affective, cognitive, behavioural, affiliative, temporal, and contextual. The affective dimension focuses on ‘sensations and emotions that are part of the hoping process”. The cognitive dimension focuses on “the processes by which individuals with imagine, wonder, perceive, think, and remember. The behavioural dimension focuses on “the action orientation of the hoping person in relation to hope.” The affiliative dimension focuses on “the hoping person’s sense of relatedness or involvement beyond self as it bears upon hope.” The temporal dimension focuses on “the hoping person’s experience of time (past, present and future) in relation to hopes and hoping.” The contextual dimension focuses on “those life situations that surround, influence, and are a part of persons’ hope.”

Dufault and Martocchio (1985) do not consider hope and hopelessness to be polar opposites on a continuum. Individuals may be hopeful for one outcome and hopeless in relation to another outcome.
Instruments Based on Dufault and Martocchio’s Model of Hope are:

2. The Herth Hope Index (HHI; Herth, 1992)

Dufault and Martocchio’s (1985) model of hope defines the elements of hope but presents few relational statements. This reduces its ability to explain, predict, or control phenomena and hinders the model’s logical adequacy (Walker & Avant, 1995). It is broadly generalizable to many populations and situations and has been used with various groups ranging from healthy elderly to individuals with cancer. It lacks parsimony in that it uses many concepts and few relationships are clear.

1.6.5. Hope and Coping

Often, hope is described as a coping strategy (Baum, Fleming & Singer, 1983; Korner, 1970; Lazarus & Folkman, 1984; Raleigh & Boehm, 1994), but it may also be described as an antecedent to coping (Dufault & Martocchio, 1985; Owen, 1989; Weisman & Bothwell, 1976) or as an outcome of coping (Engel, 1968; Farran & McCann, 1989). In fact, hope may have a role in all three aspects of coping.

1.7. HEALTH BEHAVIOUR

Health is undoubtedly the greatest bounty of nature to an individual. To the person who has lost his health, it is the most priceless possession of all.

As Sir William Temple wrote: “Health is the soul that animates all the enjoyments of life, which fade and are tasteless without it” (William Temple, 1628-1699, Brainy Quotes.com). According to the Webster’s 1913 dictionary health is defined as “The State of being hale, sound or whole, in body, mind or soul, especially the state of
being free from physical disease or pain.” There is no doubt that health and longevity have been aspirations of human beings since times immemorial. Benjamin Disraeli (British Prime Minister 1804-81) once pointed out the significance of health to the state and nation in these words “the public health is the foundation upon which reposes the happiness of the people and the strength of the nation.”

There is little doubt that the way we lead our lives, directly or indirectly affects our health. Recognition of the influence of individual behavior on health goes back to Hippocrates. In the 20th century, research in the behavioral science has shown that it contributes strongly to our understanding of physical health and illness (Rodin & Salovey, 1989).

The following findings provide significant evidence of the impact of non-physical factors on health.

1. Certain illnesses are more likely to occur among individuals with specific personality characteristics (Suls & Rittenhouse, 1987).

2. A patient’s recovery depends in part on how the physician interacts with him or her (Krantz, Grunberg & Baum, 1985).

3. In the affluent society of the United States today, scientific, technological and economic progress had led to great expansion of individual behavior choices, many of which can affect health (Somers & Weisfeld, 1986).

4. A study in Great Britain comparing newspapers aimed at the higher socio-economic classes with those designed for the lower socio-economic classes revealed a striking difference in the coverage of health issues. Kristiansen and
Harding (1984) discovered that the “quality press” prints more information about health than the “popular press”. These investigators suggested that such difference in content may be partly responsible for the greater number of illnesses and higher death rates among those lowest on the socio-economic scale. There are no adequate overall measures of functioning, vitality, or well-being. People tend to view health more globally and experientially. Although they may become concerned about specific symptoms, they tend to view their health in terms of an overall sense of well being and the extent to which the symptoms they experience disrupt their ability to function or interfere in some significant fashion with their activities. People’s feeling states influence their sense of physical well-being. Persons reporting poor physical health are frequently depressed, feel neglected, have low morale, suffer from alienation, and are less satisfied with life. Although the causal sequence goes both ways, there seems little doubt that overall life experiences affect one’s general sense of well-being.

1.7.1. Changing concepts among Professionals

Not only among the general public, confusion about health prevails today even among professionals. Health has been viewed by different scientists (e.g. biomedical scientists, ecologists, sociologists, psychologists etc.) from different angles giving rise to different concepts. These may be briefly described as under:

(a) Biomedical concept: The biomedical scientists have traditionally defined health as “absence of disease” and disease as a deviation from a biomedical norm. The biomedical concept is based on the germ theory of disease, which dominated medical thought at the turn of the 20th century, looked upon the human body as a machine, disease as the
consequence of the breakdown of the machine and one of the doctor’s task as the repair of the machine.

(b) Ecological concept: The drawbacks of the biomedical concept gave rise to other concepts, one of which has drawn particular attention is the ecological concept. The ecologists view health as a harmonious equilibrium between man and his environment, and disease as maladjustment of the human organism to the environment.

(c) Bio-Social and Bio-cultural Concepts: Developments in social sciences revealed that disease is both a biological and social phenomenon. The social scientists, therefore, asserted that not only biological factors, but also social, cultural, economic and psychological factors should be taken into account in defining health and disease.

(d) Holistic view of health: The holistic view is a synthesis of all the above concepts. According to this concept health is viewed as a multidimensional process involving in well-being of the whole person in the context of his environment. The holistic view presupposes that all sections of the society have an impact on health.

The WHO defined health as a “state of complete physical and mental and social well-being and not merely the absence of disease or infirmity.” This definition is important because some 54 nations reached International agreement on it in the 1st world health Assembly in 1948.

The initial focus on disease and cure shifted to prevention and more recently it has gravitated to subjective experiences, personal strengths and social interactions which make life more meaningful. It envisages three dimensions or components of health – physical, mental and social, all closely related. A fourth dimension has also been
suggested, namely, spiritual health.

1.7.2. Dimensions of Health

(a) Physical Health: It conceptualizes health biologically as a state in which every cell and every organ is functioning at optimum capacity and in perfect harmony with the rest of the body.

(b) Mental Health: In general, the concept of mental health connotes such abilities as those of thinking clearly and coherently, of assuming responsibilities in accordance with one’s capacities, of finding satisfaction, success and happiness in accomplishments of everyday tasks and living effectively with others.

(c) Social Health: Social health takes into account that every individual is part of a family and of a wider community and focuses on social and economic conditions and well-being of the “whole person” in the context of his social network.

(d) Spiritual health: Spiritual health for some people is connected with religious beliefs, and practices for others it is to do with personal needs, principles of behavior and ways of achieving peace of mind and being at peace with oneself.

1.7.3. Determinants of Health

Health does not exist in isolation. It is influenced by a complex of factors. These are:

(a) Heredity: Heredity is a foundation factor and the innate endowment for health given by one’s parents. It plays an important role in determining the uniqueness of each individual and his particular health status. The physical and mental traits of every human are unique and are to some extent determined by the nature of his gives at the moment of
conception. The state of health therefore depends partly upon the genetic consideration of man.

(b) Environment: Social and medical scientists have clearly established association between environment and the prevalence of illness. It is obvious that a stable and harmonious equilibrium between him and his “total environment” (physical, biological and psycho-social) is needed to reduce man’s vulnerability to disease, and to permit him to lead a more productive and satisfying life.

(c) Ways of living: Health is a way of life. It is related deeply to life style which includes way of living, peers and hygiene, habits and behaviour. These life activities are the experiences engaged in by the individual. These experiences determine the way he lives, which to a larger extent produce the quality of life and the degree of effective living. Currently major health problems like cardiovascular disease drug and alcohol abuse, cancer etc. are tied significantly to lifestyle.

(d) Socio-economic status: The health of the community is integrally related to its economic status, and its social and political organization. There is little doubt that in many developed countries, it is the economic progress that has been a major factor in reducing morbidity, increasing life expectancy and improving the quality of life. In fact most of the infections and nutritional deficiency diseases, common in developing countries are really ‘disease of poverty’.

The other side of the coin is affluence. Ironically it can also contribute to illness as exemplified by the high rate of Ischemic heart disease and diabetes in the upper socio-economic groups.
(e) Health services: Health services include all those personal and community services, including medical care, which are directed towards the protection and promotion of health of the community. The health of the people is strongly influenced by the quality and availability of health services. Health services are concerned on addressing the inequalities in health and tackle the root causes of ill-health in today’s society.

1.7.4. Types of Health Behaviour

Kasl and Cobb (1966) made a distinction between 3 different types of Health behaviour. These are:

(a) Health care behaviour: is any activity person performing to maintain or improve their health, regardless of their perceived health status or whether the behavior actually achieves that goal. Researchers have noted that people’s health status influences the type of health behavior they perform and their motivation to do it (Kasl & Cobb, 1966a).

These activities can include healthy people’s exercising, eating healthful diets, having regular dental checkups, and getting vaccinations against diseases engaging in healthful behavior depends on motivational factors particularly with regard to the individual’s perception of a threat of disease, the value in the behavior in reducing this threat, and the attractiveness of the opposite behavior.

(b) Illness behaviour: is any activity people who feel ill undertake to determine the problem and find a remedy. These activities usually include complaining about symptoms, such as stomach pains, and seeking help or advices from relatives, friends, and medical practitioners.

(c) Sick-role behaviour: refers to any activity people undertake to get well after
deciding that they are ill and what the illness is. This behavior is based on the idea that sick people take on a special “role” making them exempt from their normal obligations and life tasks, such as going to work or school. Sometimes sick role behaviors seem to serve emotional functions, as when patients moan or sigh and receive sympathy as a result.

1.7.5. Models of Health Behaviour

The models discussed below are essentially concerned with understanding and predicting health behavior.

(1) Health Belief Model

This was developed by Hochbaum, Kegeles, Leventhal and Rosenstock (Rosenstock, 1974) to predict individual’s preventive health behavior. It was subsequently modified by Becker and Maiman (1975) to incorporate sick-role behavior and compliance with medical regimens. Readiness to take action and engage in health related behaviors depends on a number of factors.

The first two are concerned with the extent to which individuals feel vulnerable to a particular illness. This involves whether they feel susceptible to contracting the illness and their thoughts about how severe it is. Besides, susceptibility, severity and vulnerability other factors involved in the model are benefits (potential to be gained from a particular course of action), barriers (degree of physical, psychological or financial distress) associated with any form of action) and cues to action (stimuli that trigger appropriate health behavior). Diverse factors such as demographic, ethnic, and social and personality traits may also influence health behavior.
Becker, Maiman, Kirscht, Haefner and Drachman (1977) included yet another factor in their revision of the model, which is the predisposition or motivation of the people to engage in health-related practices. Becker et al. (1977) states that the health belief model is a useful tool in predicting the degree to which individuals are likely to play an active role in their and other's health care.

(II) Locus of Control Model

Rotter (1954) proposed that behavior was a function of the individual’s belief that the behavior will lead to reinforcement (expectancy) and how much that reinforcement is liked (reinforcement value). The most important factor in determining generalized expectancies is locus of control. To measure these generalized expectancies, almost a dozen different locus of control measures have been developed.

We have an external locus of control if we believe that we are not masters of our own fate and are subject to the control of outside forces, such as luck or destiny and we are less likely to engage in behaviors that could have a positive effect on our health or lives, believing that it does not matter what we do, fate has already decided for us. However, we have an internal locus of control if we believe that we have the ability influence and determine the features that affect our lives and thus we are much more likely to do things for our self, because we believe that we can have a significant say in our lives.

An increasing number of health researchers have measured locus of control beliefs and have attempted to relate these expectancies to a host of health related behaviors (Oberle, 1991).
(III) Conflict Theory Model

This is a model of personal decision making that attempts to specify the conditions under which individuals will give priority to avoiding subjective discomfort at the cost of endangering their lives, and under what conditions they will make a more rational decision by seeking out and taking into consideration the available medical information about the real consequences of alternative courses of action in order to maximize their chances of survival (Janis & Mann, 1979).

Janis and Mann (1977) have suggested five different patterns of coping with realistic threats and five stages that individuals go through in order to arrive at a stable decision. These five coping patterns of the decision are as follows:

1. Unconflicted Persistence: Ignoring the information about risks and the person continuing to behave in a competent fashion.

2. Uncomplicated change: Accepting without question and adopting whatever course of action is recommended.

3. Defensive Avoidance: Evading the issue by pulling things off, shifting the responsibility to someone else or selectively attending to the sorts of information one wants.

4. Hyper vigilance: Due to a feeling of impending doom the person becomes so panicky that he jumps at the first solution that appears to provide the answer, without considering the other courses of action.

5. Vigilance: The individual carefully considers all the courses of action in an unbiased manner before taking a decision for good reason.
According to Janis and Mann (1977), the fifth pattern ‘vigilance’ is a prerequisite of decision making. In order to put the vigilance pattern into operation three conditions must be satisfied (1) awareness of serious risks for whatever alternative is chosen, (2) hope of finding a better alternative and (3) belief that there is adequate time for search and deliberation before a decision is taken.

Having satisfied all these criteria, the decision maker is now in a position to proceed through the stages of making a stable decision, and adhering to the decision. The most important feature of the theory is the emphasis on the coping pattern of vigilance and has been successfully used in many studies (Milner, 1994).

(IV) Theory of Reasoned Action

The cardinal principle of this theory is that intention is the best predictor of behaviour (Ajzen & Fishbein, 1980). The theory indicates that intention to perform a behavior is determined by beliefs and attitudes. Ajzen (1985) added another concept to the theory and labeled it the theory of planned action. He suggested that perceived control was an important factor in behavioral intention. It involves beliefs about abilities, opportunities and obstacles to the behavior. The theory has been applied to smoking (Fishbein, 1982), losing weight (Schifter & Ajzen, 1985) and breast self examination (Lierman, Young, Kaspryzk & Benoliel, 1990).

The models and theories of health behavior discussed above represent a significant step forward in understanding why people do or do not seek health care. These models and theories have been applied to a variety of health topics. In the backdrop of the above theories and models the present research is undertaken to study the health behavior among cancer and CAD patients.
1.8. **Research Objectives**

The present research is systematically designed in accordance with the following main research objectives:

1. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Happiness.

2. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Happiness.

3. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on Happiness.

4. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on happiness.

5. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on happiness?

6. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Hope.

7. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on *Agency thoughts* and *Pathways* factors of Hope Scale.
8. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on hope, and agency thought and pathways factors of hope.

9. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on hope, and agency thought and pathways factors of hope.

10. To examine the main effect of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Health behaviour.

11. To examine the main effects of gender (male and female), types of disease (CAD and Cancer) and the interaction between gender and diseases on Health Consciousness and Health Carelessness factors of Health Behaviour.

12. To examine the main effects of gender (male and female), stages of Cancer (I, II, III, IV) and the interaction between gender and stages of cancer on overall scores of Hope.

13. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Agency thoughts and Pathways factors of Hope.

14. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Health Behaviour.
15. To examine the main effects of gender (male and female), stages of cancer (I, II, III, IV) and the interaction between gender and stages of cancer on Health Consciousness and Health Carelessness factors of Health Behaviour.

16. To examine the main effects of gender (male and female) types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on overall scores of Hope.

17. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on Agency thoughts and Pathways factors of Hope.

18. To examine the main effects of gender (male and female), types of Coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between gender and types of CAD on Health behaviour.

19. To examine the main effects of gender (male and female), Types of coronary Artery Disease (CAD), (Angina, Myocardial Infarction, Congestive Heart Failure and Cardiac Arrhythmia) and the interaction between them gender and types of CAD on Health Consciousness and Health Carelessness factors of health behaviour.
20. To examine mean differences between cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 on Health Consciousness and Health Carelessness factors of health behaviour.

21. To examine mean differences between CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 on Health Consciousness and Health Carelessness factors of health behaviour.

1.9. Research Questions

The following research questions have been framed for the present study:

1. Do male and female cancer patients differ on Happiness?
2. Do male and female CAD patients differ on Happiness?
3. Do CAD and cancer patients differ on Happiness?
4. Do cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 differ on happiness?
5. Do patients of CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 differ on happiness?
6. Do male and female cancer patients differ on Hope?
7. Do male and female cancer patients differ on Pathways and Agency Thoughts factors of Hope?
8. Do male and female CAD patients differ on hope?
9. Do male and female CAD patients differ on Agency Thoughts and Pathways factors of Hope?
10. Do CAD and cancer patients differ on Hope?
11. Do CAD and cancer patients differ on *Agency Thoughts* and *Pathways* factors of Hope?

12. Do cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 differ on *hope*, and *agency thought* and *pathways* factors of hope?

13. Do patients of CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 differ on *hope*, and *agency thought* and *pathways* factors of hope?

14. Do male and female cancer patients differ on Health Behaviour?

15. Do male and female cancer patients differ on *Health consciousness* and *Health carelessness* factors of health behaviour?

16. Do male and female CAD patients differ on Health Behaviour?

17. Do male and female CAD patients differ on *Health Consciousness* and *Health Carelessness* factors of health Behaviour?

18. Do CAD and cancer patients differ on Health Behaviour?

19. Do CAD and cancer patients differ on *Health Consciousness* factor of Health Behaviour?

20. Do cancer patients of stage 1 and 2, stage 1 and 3, stage 1 and 4, stage 2 and 3, stage 2 and 4, and stage 3 and 4 differ on health behaviour, health consciousness, and health carelessness?

21. Do patients of CAD1 and CAD 2, CAD 1 and CAD 3, CAD 1, and CAD 4, CAD 2 and 3, CAD 2 and 4, CAD 3 and CAD 4 differ on health behaviour, health consciousness, and health carelessness?
1.10. Significance of the Present Study

The topic of the present study is: *A study of Happiness, Hope and Health Behaviour among Coronary Artery Disease (CAD) and Cancer patients.*

The research is needed in this area because it is evident from the survey that chronic diseases such as heart diseases and Cancer are the leading causes of death and disability worldwide. India has the highest rates of cancer in the world. Coronary Heart Disease (CHD) is also on the rise in India. Demographic shift in population age-profile combined with lifestyle related increase in cardiovascular risk factors are accelerating CHD epidemic in India (Gupta & Singhal, 1997., Reddy, 1993).

Many chronic diseases affect all aspects of a patient’s life (Burish & Bradley, 1983., Maes, Leventhal & DeRidder, 1996., Taylor & Aspinwall, 1990). Immediately after a chronic disease is diagnosed, patients can be in a state of crisis marked by physical, social and psychological disequilibrium. They find that their habitual ways of coping with problems do not work. If the problems associated with a chronic disease fail to respond to coping efforts, the result can be an exaggeration of symptoms and their meaning, indiscriminate efforts to cope, increasingly neurotic attitudes, and worsening health (Cheng, Hui & Lam 1999; Drossman, et al. 2000; Epker & Gatchel, 2000). Anxiety, stress, fear and depression may take over. As stress aggravates so many diseases and conditions (Ackerman, et al. 2002), assistance in managing the demands of daily life may be required. Consequently, health psychologists have increasingly focused on ways to ameliorate these problems.

The present researcher has enough evidence to prefer the present topic of research as compared to others. The importance of this study lies in its potential to add to the past
researches on positive psychology in terms of the personality variables. Insights to be gained from the present study will guide future research and intervention strategies.

1.11. OPERATIONAL DEFINITIONS

Coronary Artery Disease (CAD)

WHO (1982) defined CAD as “impairment of heart function due to inadequate blood flow to the heart compared to its needs caused by obstructive changes in the coronary circulation to the heart.”

Coronary artery disease occurs when the coronary arteries (that provide oxygen and nutrients to the heart) become partially blocked. Coronary artery disease (CAD) begins when hard cholesterol substances (plaques) are deposited within a coronary artery. The plaques in the coronary arteries can cause a tiny clot to form which can obstruct the flow of blood to the heart muscle producing symptoms and signs of CAD:

1. Chest pain (angina pectoris) from inadequate blood flow to the heart;
2. Heart attack (acute myocardial infarction), from the sudden total blockage of a coronary artery; or
3. Congestive heart failure
4. Cardiac Arrhythmias

CANCER

Cancer is an umbrella term for more than 100 different but related diseases. Cancer occurs when cells become abnormal and keep dividing and forming more cells without any internal control or order. Normally cells divide to produce more when the body needs them to remain healthy. However if cells keep dividing when new cells are not needed, a mass of extra tissue known as tumor or neoplasm forms, which can be
benign or malignant. Benign tumors are not cancerous and usually can be removed and when removed in most cases do not re-form. In the case of malignant tumors, cancer cells can invade and damage nearby tissues and organs. They can also break away and from a malignant tumor and enter the blood stream or the lymphatic system forming new tumors or metastasis in other parts of the body.

**HAPPINESS**

Happiness is primarily a subjective phenomenon “for which the final judge is whoever lives inside a person’s skin” (Myers & Diener, 1995). It is a state of mind or feeling such as contentment, satisfaction, pleasure or joy.

**HOPE**

Hope is defined as “the process of thinking about one’s goals, along with the motivation to move towards those goals (agency) and the ways to achieve those goals (pathways)” (Snyder, 1995).

**HEALTH BEHAVIOUR**

Health behaviour, as a general term, covers a wide variety of different kinds of activities observed at the individual level of analysis: Health behaviour, specifically consists of those behaviours that people engage in while well, in order to maintain health and prevent diseases.

Health behaviour is defined as an action taken by a person to maintain, attain or regain good health and to prevent illness. Health behaviour reflects a person’s health beliefs. Some common health behaviours are exercising regularly, eating a balanced diet, and obtaining necessary inoculations. (Mosby’s Medical Dictionary).
1.12.1. Conceptual Framework

**Happiness** → **Hope** → **Health Behavior**

**Agency Thoughts Pathways**

**Health Consciousness** → Health Carelessness

**CAD**

**Male**

- AP - Angina Pectoris
- MI - Myocardial Infarction
- CHF - Congestive Heart Failure
- CA - Cardiac Arrhythmia

**Female**

- AP - Angina Pectoris
- MI - Myocardial Infarction
- CHF - Congestive Heart Failure
- CA - Cardiac Arrhythmia

*Fig. 1.1*
1.12.2. Conceptual Framework

Fig. 1.2