CHAPTER - I

Introduction
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 levels of human functioning, the picture is vague and lopsided. Although the role of psychological factors in physical diseases have been highlighted for a long time but real attention has been paid in recent times. Now medical practitioners are accepting and appreciating the role which psychological and emotional factors may play 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 and more work on psychological correlates of diseases like coronary heart disease, peptic ulcer, asthma, hypertension, diabetes etc. are being conducted.

One of the most crucial factors which is being studied in this context is stress. The very concept of stress has psychological as well as physical connotations. More and more evidence is coming up linking stress with various diseases. Stress can trigger or aggravate almost all major physical disorders. It has been found to play a role in peptic ulcers (Wolf & Wolff, 1947, Weiss, 1984), asthma (Busse, 1990, cluss & Fireman, 1985, Eiser, 1985), headaches (Andrasik, Blake & McCarran, 1986; Gannon, Haynes, Cueves, & Chavez, 1987; kohler & Haimerl, 1990), rheumatoid arthritis (Anderson & others, 1985), skin disorders such as hives, eczema, and psoriasis (Grossbart, 1982), diabetes (Goetsch, 1989, Gonder-Frederick, carter, cox & clarke, 1990) and cancer (Haney, 1977; Fox 1978, Selye, 1979 and Kissen, 1969).

An important factor which deserves to be studied in this context is that of negative emotions which take their toll of the physical as well as mental and psychological systems of the individual. One such emotion
is anger. Our brains have evolved to the point that they perceive threats other than those from physically tangible sources. Imagined or social dangers such as fear of failures, regrets, worries may keep the sympathetic system aroused and place the body in a continual state of emergency, sometimes for far longer than it can bear, thus precipitating the development of disease. Studies conducted by many investigators, notably Johnson, (1989), Jorgensen & Houston (1988) and Mendes de Leon, (1992) have emphasized the role of anger in the causation of psychophysiological disorders.

 Appreciation of relationship between psychological factors and physical disease is not very new. Psychosomatic medicine goes back to ancient times. In 200 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.

 It would be relevant to elucidate in what way psychological factors mediate in the causation of physical diseases. Both physiologically oriented and psychologically-oriented explanations have been forwarded to explain why and how psychological and emotional factors play a crucial role in physical disease.

 The physiological approaches attribute particular psycho-physiological disorders to specific weakness or overactivity of an individual's organ systems in responding to stress. The major explanations forwarded focus on somatic weakness and specific reaction. According to the somatic-weakness theory, the connection between stress and a particular psychophysiological disorder is the weakness in the specific bodily organ. A large number of possible factors like genetic predispositions, earlier illness, diet may disrupt a particular organ system, which may then become weak and vulnerable to stress and responsible for psychosomatic disorders. The specific reactions theory assumes that individuals respond
to stress in their own idiosyncratic way (Lacey, 1967) and the body system that is the most responsive may become vulnerable to subsequent psychophysiological disorders. Someone reacting to stress with considerable secretion of stomach acid may be more vulnerable to ulcers (Strang, 1989) and someone reacting to stress with blood pressure elevation may be more susceptible to essential hypertension (Friedman & Iwai, 1976).

Explanation at the psychological level have 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. Alexander assumed that ulcer patients have repressed their longing for parental love in childhood, and that this repressed impulse causes the overactivity 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.

Learning model assumes that the physical symptoms in these disease already exist. Thus any learning model of a psychophysiological disorder requires a physiological predisposition, a diathesis of some kind. Bandura (1969) proposed that through classical conditioning neutral stimuli paired with pollen (which is natural stimulus causing asthma in many cases) could also come to elicit asthma. Furthermore, the asthmatic attacks might also be viewed as operant responses producing rewards. Dworkin and his colleagues (1979) proposed that development of hypertension can be explained by using the principles of operant conditioning.

The interdisciplinary approach to treatment of physical disorders thought to have psychological factors as a major aspect of their causal
patterns, broadly known as behavioral medicine (Gentry, 1984a), 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 to as Health Psychology has emerged. Health psychology is a sub-speciality within the behavioral medicine approach. Since the 1970s, behavioral medicine and health psychology have dealt with the role of psychological factors in all facets of health and illness. Beyond studying the etiological role that psychological factors can play in illness, workers in these fields study psychological treatments (e.g., biofeedback for migraine headache), the maintenance and promotion of healthful behaviours (e.g., dietary change to reduce cholesterol intake and thus lessen the risk of heart attack), and the health care system itself (e.g., how to better deliver services to unserved populations) (Schwartz and Weiss, 1977; Stone 1982).

It may be noted that psychophysiological disorder is a real disease involving damage to the body. The fact that emotional factors are viewed as causative does not detract from the seriousness of the symptoms for the individual's well-being, even survival. In contrast to conversion disorder which do not involve organic damage, psychophysiological disorders result in the same type of pathology which results from infection or injury. The suffering involved and the accompanying problems are serious. It is therefore not surprising that a lot of attention is being focussed by psychologists in this area.

The investigator has taken up for study the role of stress and anger in coronary heart disease and essential hypertension. In view of the increasing incidence of cardiac disorders and the problem of elevated blood pressure, the researcher has selected for study the role of stress and
anger in these two diseases. Since anger is no longer conceived of as a single dimension but 'anger-in' and 'anger-out' have been found to be empirically independent and factorially orthogonal (Spielberger, Johnson, Jacobs, Krasner, Oesterle, and Worden, 1985), anger has been studied in terms of expressed and suppressed anger, together with taking cognizance of other pertinent dimensions, viz anger total and anger control.

**CORONARY HEART DISEASE:**

Coronary heart disease (CHD) is a potentially lethal blockage of the arteries supplying blood to the heart muscle, or myocardium. Coronary heart disease takes two principal forms, angina pectoris and myocardial infarction or heart attack. The symptoms of angina pectoris are periodic chest pains, usually located behind the sternum and frequently radiating into the left shoulder and arm. The principal cause of these severe attacks of pain is an insufficient supply of oxygen to the heart, which in turn, is traced to coronary atherosclerosis, a narrowing or plugging of the coronary arteries by deposits of fatty material. Angina is generally precipitated by physical or emotional exertion and is commonly relieved by rest or medication. Serious physical damage to heart muscle rarely results from an angina attack, for blood flow is reduced but not cut off. Myocardial infarction (MI) is a much more serious disorder and is the leading cause of death. Like angina pectoris, myocardial infarction is caused by an insufficient oxygen supply to the heart. The oxygen insufficiency, more extreme than in angina pectoris, results from coronary artery disease, either a general curtailment of the heart's occlusion, a sudden obstruction of a large coronary artery by deposits or by blood clot. In both instances parts of the heart muscle die. In addition to this greater severity and possibility of death, myocardial infarction differs from angina in that it is not necessarily precipitated by exertion, and the pain is longer and more severe (Friedberg, 1966).

In America, deaths from CHD have declined dramatically in recent years but in India it is on the rise. CHD is one of the major cause
of death in India. According to latest report by a panel of experts from the World Health Organisation Indians have a 150 percent to 400 percent higher death rate from heart attack as compared to Americans. And Indian women are 8 percent more liable to develop cardiovascular problem than women from other parts of the world.

The American Heart Association lists seven factors related to increase risk for CHD; age, sex (males are at a greater risk), cigarette smoking, elevated blood pressure, elevated serum cholesterol, an increase in the size of the left ventricle of the heart, as revealed by electrocardiogram and diabetes (Insull, 1973). The risk of heart disease generally increases with the number and severity of these factors. However, Jenkins (1976) has concluded that these traditional risk factors leave at least half of the etiology of CHD unexplained. Noting this circumstance, cardiovascular researchers have increasingly turned their attention to possible nonbiological contributions to the disease's development i.e. to psychosocial and personality factors. Such considerations actually go back many years. The Englishman William Harvey was writing of "affections of the mind" that generate problems in heart function as early as 1628. However, the most promising evidence linking CHD to psychological variables comes from the investigations by Friedman and Rosenman (1959) who identified a coronary prone behaviour pattern called Type-A.

It has been found that people who exhibit Type-A behavior are more likely to suffer a heart attack than are Type-B individuals (Rosenman, Brand and others, 1975; Haynes, Feinleib & Kannel, 1980). Since the evidence linking Type-A behavior to CHD was overwhelming therefore in 1981 American Heart Association decided to classify Type-A behavior as a risk factor for heart disease. However, some recent studies failed to find a relationship between CHD and overall type-A case (Heller, case & Moss 1985; Shakelle et al. 1983; Fischman, 1987). Several studies have found that a person's level of anger and hostility (which are component of type-A) are better predictors of heart disease than is his overall level of type-A behavior (Dembroski, Mac Dougall, Williams, & Haney, 1985; Wood, 1986; Hecker, Chesney, Black & Frautsch, 1988).
HYPERTENSION

Hypertension is another serious disorder of modern times. Hypertension is also known as high blood pressure. Blood pressure is measured by two numbers; one represents systolic pressure and other represents diastolic pressure. The systolic measure is the amount of arterial pressure when the ventricles contract and the heart is pumping; the diastolic measure is the degree of arterial pressure when the ventricles relax and the heart is resting. A normal blood pressure in a young adult would be 120 (systolic) over 80 (diastolic). A blood pressure level that is over 140 (systolic pressure) and does not fall below 90 (diastolic pressure) is usually considered high. High blood pressure indicates that there is resistance to the flow of blood through the cardiovascular system. This condition places pressure on the arteries and forces the heart to work harder to overcome the resistance.

This disease disposes people to atherosclerosis (clogging of the arteries), heart attacks, strokes, blindness and it can also cause death through kidney failure. One in every six Indians has hypertension. Varying degrees of hypertension are found in 15 to 33 percent of the adult population of the United States; as many as two percent of American College Students have hypertension. Blacks suffer from hypertension about twice as compared to whites (Edwards, 1973; Mays, 1974).

Unlike other diseases, there are usually no symptoms to signal high blood pressure. The individual experiences no personal distress. In severe cases, some people complain of headaches, tiredness, insomnia, or occasional dizzy spells - symptoms often easy to ignore but most persons suffering from hypertension receive no warning symptoms. Nelson (1973) found that a third of the adults tested had high blood pressure, only half of them had been aware of it.

Although in certain cases, kidney dysfunction or pathology of some physical system may cause hypertension, organic factors are not identifiable
in 90 to 95 percent of hypertension cases (Byassee, 1977). Thus, the condition is often called essential hypertension. Essential hypertension means hypertension without an evident organic cause.

It is therefore more likely that psychological factors play a role in the development of this disorder. The classical psychoanalytic interpretation is that suppressed anger is the cause of hypertension. Many researches support this hypothesis (Gentry, Chesney and others 1982; Spielberger et al. 1985; Dimsdale, Pierce, Schoenfeld, Brown, Zusman & Graham 1986) although some evidence relating expressed anger with hypertension is also available (Harburg and others, 1991).

Thus there is ample evidence to suggest that coronary heart disease and essential hypertension must be studied in the perspective of psychological and emotional factors. Two important factors that warrant investigation in relation to these two diseases are stress and anger.

STRESS:

Stress is an internal state which can be caused by physical demands on the body (disease conditions, exercise, extremes of temperature, and the like) or by environmental and social situations which are evaluated as potentially harmful, uncontrollable, or exceeding our resources for coping. The physical, environmental, and social causes of the stress state are termed stressors. Almost any change in the environment - even a pleasant change, such as a vacation - demands some coping. But beyond some points, "stress" becomes "distress". What acts to produce distress varies greatly from person to person, but some events seem to be stressors for many of us. Chief among these are injuries or infections of the body; annoying or dangerous events in our environments; major changes or transitions in life which force us to cope in new ways; and anticipated or actual threats to our self-esteem.

The available scientific literature reveals that studies on stress can
be placed into one of the three groups representing the main approaches to the problems of its definition and its nature. The first approach describes stress in terms of the person's 'response', to disturbing or noxious environments. The second approach describes stress in terms of the 'stimulus' characteristics of those disturbing or noxious environments. The third approach views stress as the reflection of 'lack of fit' between the person and his environment. Stress in this form is studied in terms of its antecedent factors and its effects. It is seen as an intervening variable between stimulus and response.

**RESPONSE-BASED DEFINITION APPROACH:**

This approach defines stress as a response: researchers are interested in identifying the patterns of psychological and physiological responses that occur in difficult situations. One of the pioneers in stress research, Hans Selye defines stress as the "non-specific response of the body to any demand made upon it" (Selye, 1979). By "non-specific", he meant that the same pattern of responses could be produced by any number of different stressful stimuli, or stressors. Selye's primary concern was for the physiological mechanism and this has led to a close association between response based and physiological models of stress.

Second, he believed that this defence reaction progresses with continual or repeated exposure to the stressor, through three identifiable stages (1) the alarm reaction, (2) the stage of resistance, and (3) the stage of exhaustion. Together these identifiable stages represent his general adaptation syndrome. The stage of exhaustion represents the point at which the individual succumbs to disease.

**STIMULUS-BASED DEFINITION APPROACH**

This approach focuses on the stimulus, conceptualizing stress in environmental terms as an event or a set of circumstances that requires an unusual response. Within this framework, researchers have studied
catastrophic events such as tornadoes, earthquakes, or fires, as well as more chronic stressful circumstances such as imprisonment or crowding. They have also studied the relationship between the accumulation of stressful life events (such as job loss, divorce, or the death of a spouse) and the risk of subsequent physical illness. And they have tried to identify the characteristics of a situation that make it stressful.

In this approach, stress has been explained by using the engineering model. Engineering analogy is represented by Welford (1976) as performance demand model of stress. Welford proposed that stress arises whenever there is a departure from optimum conditions of demand which the person is unable or not easily able to correct. Most organisms, including man, appear to have evolved so that they function best under conditions of moderate demand. If a man's performance is less than maximal this may be due to both too high or too low a level of demand. This demand, if it is beyond the level of human coping acts in the same way as extremely heavy load would act on structures, i.e., producing 'cracks', analogous in the human being as disease.

TRTRANSACTIONAL APPROACH

A third approach views stress as neither a stimulus nor a response, but as a transaction or relationship between the person and the environment that taxes or exceeds the person's resources. The transactional approach argues that focusing on stimuli and responses is not sufficient. While some situations are stressful for everyone (natural disaster, life-threatening illness, or the loss of a loved one), many less dramatic experiences (taking an examination, arguing with a spouse, getting stuck in traffic) are stressful for some people but not for others. Responses to stressful situations, even physiological responses to painful stimuli, can be powerfully influenced by psychological factors. To understand stress, we need to know how the individual appraises a situation in terms of his or her particular (1) motives and needs, and (2) resources for coping. From a transactional perspective, stress reflects a relationship between
a person and the environment that is appraised by a person as taking
his or her resources and endangering his or her well-being (Lazarus &
Folkman, 1984b). Cognitive appraisal and coping are two critical processes
that determine the stressfulness of the person-environment relationship.
Cognitive appraisal is an evaluative process that determines why and to
what extent a person views a situation as threatening. And coping refers
to the behavioural and cognitive strategies used to manage the demands
of the situation that are appraised as stressful and the emotions generated
by it.

Both the positive and negative events can produce stress. According
to Hans Selye (1976a) there are two types of stress, eustress and
distress. Eustress refers to the positive stress and distress means the
negative stress (in most cases, a wedding would be eustress; a funeral,
distress). Both types of stress tax the individual's resources and
adjustment, though distress typically has the potential to do more damage.

By the same analogy, it is possible that positive stress may have
the capacity to minimize damage or even to do good to the individual.
Proponents of the cognitive viewpoint considers the qualitative aspect of
experience to be of paramount importance. Although it is true that to
cope with a crisis as negative as death of a dear one or as positive
as a marriage celebration, psychological and physical energy is expanded
by the individual. At the molecular level in terms of certain biological
processes, these responses are similar in both types of experiences. But
the drastic difference between the nature of the two experiences cannot
justifiably permit this lumping together. This point has been succintly
brought out by Schachter (1959; 1964; 1972). He said that emotional
states (stress) are mainly determined by cognitive factors. He argues
that emotional states are characterized by a general arousal of the
sympathetic nervous system and that from state to state this may differ
slightly in its pattern. He maintains that we interpret and classify these
states by clues, from the situation which brought them about and also
from our typical mode of perception, physiological arousal occurs and is
given its precise direction by our cognition of what brought it about.
In many cases, when we encounter stressful events, whether we will experience positive or negative stress depends on the assessment of the situation. This assessment process is called cognitive appraisal (Cohen & Lazarus, 1983; Lazarus & Folkman, 1984b). Cognitive appraisal is a mental process by which people assess two factors: (1) whether a demand threatens their well-being and (2) the resources available for meeting the demand.

Factors internal as well as external to the individual determine this appraisal (Cohen & Lazarus, 1983; Lazarus & Folkman, 1984b), personal (internal) factors include intellectual, motivational and personality characteristics, self-esteem is one example. People who have high self-esteem are likely to believe they have the resources to meet demands that require the strengths they possess. If they perceive an event as stressful, they may interpret it as a challenge rather than a threat (Cohen & Lazarus, 1983). Motivation is also an example: the more important a threatened goal, the more stress the person is likely to perceive (Paterson & Neufeld, 1987). According to Albert Ellis (1977) many people have irrational beliefs that increase their stress. Such type of person can appraise almost any sort of inconvenience as harmful or threatening.

Amongst factors external to the individual which influence his appraisal is the all important factor of social support. Social support refers to the perceived comfort, caring, esteem or help a person receives from other people or groups (Cobb, 1976; Gentry & Kobasa, 1984; Wills, 1984). This support can come from many different sources - the person’s spouse or lover, family, friends, coworkers, physician, or community organizations. According to Cobb (1976), people with social support believe they are loved and cared for, esteemed and valued, and part of a social network, such as a family or community organization, that can provide goods, services, and mutual defense in times of need or danger. This belief influences their perception in a particular way.

Thus, perception of a stressful events as positive is an important
index of the person’s perspective of life. It may be the outcome of a sense of belief in one’s capacities, a sense of challenge, a feeling of strength derived from social support or any similar factor but a positive appraisal definitely has a different meaning from a negative appraisal. This is an important point which must not be undermined.

**IMPACT OF STRESS ON PHYSICAL DISEASES**

Continued presence of a stressor can cause various physical disorders. During stress, adrenocorticotropic hormone (ACTH) is secreted into the bloodstream by certain cells in the pituitary gland. The activity of ACTH is controlled by hypothalamus through its hormone-like chemical substance-corticotropin-releasing factor (CRF). Stressors are able to activate the nerve cells of the hypothalamus so that more corticotropin-releasing factor is sent to the pituitary gland, thus increasing secretion of ACTH into the blood. ACTH stimulates cells in the outer layers or cortex of the adrenal glands so that corticoid hormones such as cortisol are secreted into the bloodstream.

Cortisol and other similar hormones have many actions which allow the body to deal adaptively with stressors for long periods of time. But maintained high levels of these hormones can be harmful. For instance, cortisol promotes the formation of glucose (blood sugar) - a fuel needed for nerve and muscle activity - by breaking down fats and proteins. In the short run, this is adaptive, the body has more fuel available. In the long run, though, the increased use of protein to make fuel may be serious because proteins are needed in the manufacture of new cells. For example, white blood cells, which are crucial for fighting infection have a short life time and must be continuously replaced. If the proteins needed to make new white blood cells are in short supply because they are being used to make fuel, fewer white blood cells can be produced and the body will be less able to fight infection. In addition to this, the inhibitory action of cortisol on the formation of the infection-fighting proteins called antibodies, together with shrinkage of the tissues which manufactures white
blood cells, and it is clear that high levels of cortisol can, in the long run, seriously impair the body's defenses to infection. In addition to cortisol, other hormones are also involved in the body's response to cope with stress. These hormones, in excess, may also have harmful effects on body and can cause physical diseases. Due to the actions of cortisol, a person may no longer be able to ward off infection and may become sick and perhaps die.

Stress can also affect the ability of the immune system to defend the body from various diseases. One relatively new area of research in behavioral medicine is psychoimmunology, the study of how the body's immune system is affected by psychological variables. The immune system is a surveillance mechanism that protects the body from disease-causing microorganisms. It regulates our susceptibility to cancers, infections diseases, allergies, and autoimmune disorders (that is, diseases such as rheumatoid arthritis, in which the immune cells attack the normal tissue of the body). A review of the literature indicates that stress can influence the functioning of the immune system and our vulnerability to infection diseases (Jemmott & Locke, 1984).

Stress is a major cause of physical disorders, DSM-IV emphasize the role of psychological factors in all illness. Chronic stress can lead to such physical disorders as heart disease, ulcer, diabetes, skin disorders, asthma, high blood pressure, etc.

Stressful life events can also cause CHD and hypertension. Canadian physician Sir William Osler (1892) explicitly related the development of CHD to "the worry and strain of modern life" and "the high pressure" under which people live. More recent evidence indicates a relationship between CHD and such stressors as an overload of work, chronic conflict, and the life stressors tapped by the SRRS (Jenkins, 1971, 1976, Rahe and Lind, 1971).

Various stressful conditions have been found to play a role in the causation of essential hypertension. Stressful interviews, natural disasters
and anxiety have been found to produce short-term elevations in blood pressure (Innes, Miller and Valentine, 1959; Ruskin, Board and Schaffer, 1948; Ax, 1953). In another study Edwards (1973) found that a highly stressful job markedly increased the risk of high blood pressure. Kasl and Cobb (1970) found that high blood pressure was produced by loss of employment.

Studies have also demonstrated that hypertensives show greater blood pressure reactivity, reacting to stress and other novel situations with blood pressure increase that are larger than those of normal people (Engel and Bickford, 1961). Wood, Sheps and others (1984) followed up subject who many years earlier had their blood pressure monitored during a stress task. Those who had reacted strongly were five times more likely to be hypertensive. Further, support for the importance of reactivity comes from high-risk research comparing individuals with and without a positive history for hypertension (e.g. Hastrup, Light and Obrist, 1982). Thus essential hypertension is caused by interplay between a diathesis and a stress.

ANGER:

Anger may be defined as an emotion characterized by strong feelings of displeasure, which are triggered by real or imagined wrong (Davidoff, 1987). Berkowitz (1962) considers that anger refers to an emotional state presumably resulting from frustration, which when congruent with a suitable cue instigates aggressive responses. It is maintained by certain authors that aggression in the form of an offensive attack reflects an underlying emotional state, constituting at least a primitive analogue of what we call in humans anger (Blanchard & Blanchard, 1984).

In order to clarify what is meant by anger, it is necessary to distinguish it from terms akin to it and often used interchangeably like aggression and hostility.

Aggression: The concept of aggression has received a vast amount of
attention from psychologists. We attack, hurt and sometimes kill each other; we aggress verbally by means of insults or attempts to damage another's reputation; and wars always seem to be happening. The term aggression is hard to 'pin down' and there is some disagreement about what should and should not be called aggression. A distinction is sometimes made between hostile aggression and instrumental aggression. Hostile aggression "is any form of behavior directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment (Baron, 1977). In instrumental aggression (Buss, 1961, 1966), the individual uses aggression as a way of satisfying some other motive.

Anger is a situational aggression. So anger frequently accompanies aggression, but Berkowitz (1964, 1965) has shown that anger does not always lead to aggression, but requires the presence of appropriate cues. Other studies by Scott (1958) and Buss (1971) have demonstrated aggression in the absence of anger. Kaufmann (1965) presumes anger to be neither a sufficient nor a necessary condition for the production of aggressive behavior. Anger is therefore not synonymous with aggression.

Hostility: Hostility typically consists "of the mulling over of past attacks on oneself; rejection and deprivation" (Buss, 1961). This suggests perhaps that hostility is the result of punishment; repeated punishment and suffering at the hands of others may lead to a generalized dislike of humanity, and a tendency to perceive the pain and discomfort of people as reinforcing. It is possible that whilst "instrumental aggressiveness" is a learned disposition to employ noxious stimuli as a means of acquiring extrinsic reward, hostility is the consequence of punishment and involves a desire to hurt others. Buss (1961) suggests that hostility "involves negative evaluation of people and events... (and) may be inferred when the attack is reinforced more by injury than by attaining the "extrinsic reinforcer". Kaufman (1970) writes of the hostile person", we think of him as one who has a habit or propensity for disliking others, wishing them harm or aggressing against them". Thus hostility is a more enduring condition of enmity, involving angry feelings and a tendency to inflict harm.
It is evident that anger is not synonymous with these terms. This difference has been found on conceptual level (Scott, 1958; Buss, 1971; & Coleman, 1979) and on hormonal basis (Gambargo & Rabin, 1969). Hormonal differences have been found between anger and aggression. Gambargo and Rabin (1969) reported that in an anger situation both systolic and diastolic blood pressure were elevated, whereas only systolic blood pressure remained elevated after aggression.

Hormonal differences have also been found between fear and anger, anger reaction indicates the presence of epinephrine and norepinephrine, whereas in fear only epinephrine seems to be present (AX, 1953; Schachter, 1957).

There are two dimensions of anger, anger-in and anger-out. Anger-in refers to how often angry feelings are experienced but not expressed. Whereas anger-out refers to the extent that an individual engages in aggressive behaviours when motivated by angry feelings. Traditionally, it had been customary to conceptualize anger as a single dimension but in recent years the concept of anger-in and anger-out has entered psychological literature. Thus two basic dimensions of anger are visualized - anger-in and anger-out. Extensive and intensive work has been carried out to clarify if both the conditions are but two extreme points of the same continuum or independent dimension of their own.

Spielberger, Johnson, Jacobs and others (1985) analyzed results obtained on their Anger Expression (Ax) Scale and found that anger-in and anger-out subscales were empirically independent as well as factorially orthogonal. Clearly, these two subscales assess two independent anger expression dimensions. This concept has received support from various sources and we observe that psychological researchers are using anger-in and anger-out concepts with increasing popularity.

In addition to anger-in and anger-out, two other dimensions of anger are recognized, that is, anger-control and anger-total. Anger control may
be defined as a tendency not to become angry even in anger provoking situations. Anger-total reflects a configuration of all the anger dimensions.

Two dimensions of anger, namely, anger-in and anger-out are being extensively studied vis-à-vis their role in physical and psychological health. Anger, both suppressed and expressed, can easily result in psychosomatic reactions, including high blood pressure (Gentry et al. 1982; Spielberger et al. 1985) heart problems (Wood, 1986; Hecker et al. 1988), ulcers and various other physical conditions. Although, we often dramatize the effect of unexpressed anger in these respects, evidence seems to show that expressed anger also encourages physical pain and dysfunction. It has been found that suppressed anger is linked to elevation in blood pressure (Gentry et al. 1982; Feshback, 1986; Spielberger, et al. 1986). While frequently expressed anger is linked to coronary malfunctioning (Feshback, 1986, Mendes de Leon, 1992).

AIMS AND OBJECTIVES OF THE PRESENT STUDY:

In view of the importance of emotional factors for physical pathologies, it is essential that studies which highlight the relationship between the two are undertaken. In complex phenomena like human behaviour there are never straight one to one relationships that are applicable in all situations. Rather there are unique combinations of factors which function in ways. Thus, the task of the psychologist's to find laws and predictabilities within these complexities is undoubtedly a challenging one. This particular study has been undertaken as an attempt to unravel the interrelationship which exists between emotional and psychological factors such as stress and anger and the two most common diseases of our time, namely CHD and hypertension. The aims and objectives of the study may be summarized as follows.

1. To examine the role of various anger dimensions (anger-total, anger-in, anger-out and anger-control) in coronary heart disease.
2. To examine the role of various anger dimensions (anger-total, anger-in, anger-out and anger-control) in hypertension patients.

3. To explore various anger dimensions (anger-total, anger-in, anger-out and anger-control) in patients who are suffering from both diseases, that is, coronary heart disease and hypertension.

4. To examine the role of various anger dimensions (anger-total, anger-in, anger-out and anger-control) as they occur in subjects who are not suffering from these diseases (disease free group).

5. To explore the role of stress in patients suffering from coronary heart disease.

6. To explore the role of stress in patients suffering from essential hypertension.

7. To explore the stress factor in patients suffering from both diseases, that is, coronary heart disease and essential hypertension.

8. To examine stress factor as they occur in subjects who are not suffering from these diseases (disease free group).

9. To examine positive life experiences perceived by various groups.

With more and more emphasis on researches which have relevance to human problems and quest for a better quality of life, such studies are essential and timely. Only proper knowledge and understanding can pave the way for any intervention. Thus, the present investigation may be able to serve some important purposes.