CHAPTER I

Introduction
INTRODUCTION

Among the many health predictions for the new millennium, the most alarming is that of cardiovascular disease—heart disease and stroke—tops the list for death and disability.

Cardiovascular disorder is a serious health problem in the technological world or society. It is a major cause of morbidity and mortality in the industrialized world. Cardiovascular means pertaining to heart and blood vessels. The cardiovascular system is sometimes called circulatory system. It consists of the heart muscle that functions as a pumping device and series of tubes leading away from the back to the heart. These tubes are called blood vessels. Hence cardiovascular disorders includes of the heart and blood vessels.

In 1994 cardiovascular disorders accounted for 42 per cent of all deaths in the United States, a total of 955,000. Heart disease was the leading cause of death, followed by cancer and then cerebrovascular disease. This includes white, black and Asian, United State population. In American Indians and in Hispanic American heart disease is the leading cause of death. In the United States, an estimated 13.7 million have coronary heart
disease about one half of whom have myocardial infarction and half have angina pectoris. In the United States CHD causes about 800,000 new heart attacks each year and 450,000 recurrent attacks. CHD is the leading cause of death in adults in United States. In 1994, there were 487,000 coronary deaths. Hypertension is the most powerful contributors to cardiovascular mortality. It is most important factor contributing to 500,000 cases of stroke that occur each year in United States and is a major factor in the estimated 1.5 million annual heart attacks. It is the main contributor to the 54,000 death from stroke, 45,000 deaths from cardiac failure, many of the 487,000 death from CHD and many of the 22,000 deaths from kidney disease that occurred in 1994. Two percent of United States population 3.9 million, have cerebrovascular disease (Stroke). Cerebrovascular disease, the third leading cause of death, was responsible for 207,000 deaths in 1974. This disease still account for every 15 death. An estimated 4.8 million American have congestive heart failure. Each year there are an estimated 400,000 new cases. The National Centre of health statistics data from 1993 assigned 26,214 death of cardiomyopathy. Arhythmias can be a manifestation of many cardiac disease. In 1994 there were estimated 614,000 hospital discharge with arrhythmias listed first an hospital record. The estimated prevalence in 1994 of active rheumatic fever and chronic rheumatic heart disease in
United States was 1.4 million persons -5 per 1000, person of all age. The 1990 National health interview survey in the united states estimated that 960,000 persons reported being told they have congenital heart disease and pulmonary emboli are probably directly responsible for 50,000 death annually in United States. In 1993 cardiovascular disorder account for $ 216 billion in health expenditure in United States 2 per cent of the gross domestic product.

These diseases also account for an estimated $ 84 billion in lost productivity due to illness and premature mortality. These expenditures and indirect cost are by far the largest for any diagnostic group. It has been estimated that in AD 2001, 17 million people died of cardiovascular disease of all types. In 1998, 12.4 million died of heart attack and stroke (heart attack 7.3 million, stroke 5.1 million). In India with rapid industrialization and change in life style the prevalence of CVD is increasing rapidly. But specific mortality data for making ideal comparisons with other countries are not available in India. This is due to inadequate and inappropriate death certification, and multiple concurrent causes of death. The annual surveys conducted by the registrar general of India cover about 0.5% of rural death of India. The subject covered under "circulatory disease" include anemia, among others, Stroke, rheumatic heart disease, hypertension are not included. The figure published by the world
health organization (WHO), drawn mainly from the source and what they are worth, show a much higher prevalence in India than in many other developing countries. Population based surveys, with all their attendant pitfalls in sampling design, sample size standardization and measurement errors, remain the most important source of information today. Old surveys pointed to a low incidence of IHD 1%-4% whereas recurrent surveys show a figure of nearly 10% (96.7/1000). There are great regional variations. Hospital statistics are obviously biased data and from the reason for the present impression of an "epidemic of ischemic heart disease in India" Data from Christian medical college (CMC), Vellore and All India institute of medical sciences, New Delhi (AIIMS) over a period of 30 years show a decline in admission for RHD and an increase in admission for CHD. Department of cardiology and cardiac surgery have been upgraded in many hospital, especially private intensive coronary care unit (ICCU) have sprung up in small towns and there have been an increase in cardiac surgery of all types. Every year 25000 coronary artery by-pass grafting (CABG) and 12,000 precutaneous transluminal coronary angioplasties (PTCAs) are carried out. Hypertension appears to be the most important risk factor for the development of CHD throughout India. In a study in a Delhi involving 8000 subjects, the most important risk factor for CHD was hypertension in over 50% of subjects young and old, followed by smoking
and diabetes. This was also been seen at AIIMS New Delhi and CMC, Vallore.

Extensive research has attempted to identify the risk factors, especially those associated with premature (before age 65) onset of mortality from CHO. It is generally conceded that the alarming rise in the incidence of CHD should be attributed to changing way of life, to socio-cultural and economic factors. Psychological variables have long been suspected to being a class of risk factors that increase the chance of premature development of CHD and its clinical manifestation.

**Factors responsible for cardiovascular disorders:**

A psychosocial factors may be defined as a measurement that potentially relates psychological phenomena to the social environment and to pathophysiological changes. Evidence of mechanisms linking psychosocial factors with CHD is important in making casual inferences and therefore in designing preventive interventions. Psychosocial factors may act alone or combine in clusters and may exert effects at different stages of the life course. Broadly, three interrelated pathways may be considered. Firstly, psychosocial factors may affect health-related behaviors such as smoking, diet, alcohol consumption, or physical activity, which in turn may influence the risk of CHD. If such behaviour
do lie on the causal pathway between psychosocial factors and CHD, then treating them as confounding variables, as some studies do, must be questioned. Secondly, psychosocial factors may cause direct, acute or chronic pathophysiological changes. Thirdly, access to and content of medical care may plausibly be influenced by for example, social support (but there is little direct evidence for this). Although it is beyond the scope of this review to consider the determinants of adverse psychosocial factors, socioeconomic status is inversely associated with CHD and also with certain psychosocial factors, and it has been proposed that psychosocial pathways may play a mediating role.

The role of environment in cardiovascular disorders:

In modern times, the human sociocultural environment in many countries has been characterized by an increasingly hectic psychological climate and dwindling use of somatomoter system. The ancient "Emotional brain" evolved millions of years ago to cope with the comparatively infrequent but harsh physical challenges of primitive life. It now confronts stressful environmental stimuli several times each day and engages limbic - hypothelamic pattern of emotional expression. These ancient responses, designed to eliminate overt dangers by appropriate physical exertion, are frequently inadequate for dealing with sophisticated challenges, symbolic threats and frequent arousal typical of life in modern society.
The individual must therefore use whatever neocortical coping mechanism, he or she may have developed. When intellectual coping fails, the constraints of civilization force suppression of the more spectacular somatomotor of expression of induced emotional pattern. Sudden attack or flight is seldom considered proper in polite society. When emotional tension can not be readily diffused by Physical action, it is often transmuted in to sustained irritation, resentment or frustration, thereby prolonging the associated primitive, neurohormonal adjustment of the cardiovascular system - now maladaptive in a modern context.

The cardiovascular system can be markedly and frequently engaged by environmentally induced defence reactions, with enhanced sympathetic discharge and reduced vogal tone. it is not surprising, therefore, that social status, interaction with other peoples, and changes in other social elements can have an impact on health. When people change jobs, move their place of residence, or make other life changes, the risk of heart disease may increases two or three times independent of such factor as age, sex, race, cigarette smoking, cholesteral, blood pressure history, physical inactivity and obesity.

Hypertension was found to be less prevalent among blacks living in areas of detroit with low ecologic stress than among
their counterparts living in high-stress areas. Other data suggest there may be an interaction between stress and sodium sensitivity in black children, such that the combination of being black, on a high salt diet, and exposed to stress produces higher than expected increases blood pressure.

A study of Japanese immigrants to the Bay Area of California found a marked increase in Coronary heart disease (CHD) - up to fivefold - compared with Japanese who remained in Japan. Among the Japanese immigrant in California, however, there was a group who had almost the same low incidence of CHD as those who remained in Japan. The major CHD risk factors did not appear entirely to account for the differences. This suggested that mobility perse was not a major risk factor for the immigrants. The main effect between the groups appeared to be their degree of social support. The group with highest rate of the CHD had become acculturated and had adopted "Western Ways." Those with a low incidence of heart disease had closer ties with other members of the Japanese ethnic group and more closely maintained their native language, diet and customs.

A study in a more general population verified the importance of social support networks. Connections were evaluated on the basis of criteria such as marital status, membership of clubs, and attendance in church or synagogue. Follow-up over the
next few years revealed that people with fewer connections at the beginning of the study had a mortality rate two or three times higher than that of those with the greatest number of associations, even when taking into account such factors as age, race, cigarette smoking, serum cholesterol, socio-economic status, blood pressure, family history, physical activity, obesity and self-reported health status. Curiously the data were for all forms of death, not just heart disease.

The protective effects of social support may help to explain two questions raised by morbidity data; (i) why certain risk factors as related not just to one disease but to a variety of disease and (ii) why the recognized risk factors - such as cigarette smoking, serum cholesterol, blood pressure - often related imperfectly to disease incidence and outcome. It may be that some people are partially protected from the adverse effects of these factors by the positive effects of social support.

In Syme's view, life changes are important primarily when they disrupt relationships, as they do with job changes, residential moves, divorce or the loss of loved ones. Even the difference between male and female risk in CHD may be partially related to social support, as men seem to have fewer intimate ties.

The effect of social contact can also be seen in animal studies. Rabbits that were fondled and petted while on a high
cholesterol diet had markedly lower rate of atherogensis than a matched group that were not fondled. In nonhuman primates, it was noted that affiliative behaviour, such as grooming, lowers the heart rates have been correlated with increased atheroclerosis.

**Job stress:**

Architectural layout, danger and excessive noise (unwanted sound) at work can have an impact on stress and health. Other stressors - such as time pressure assembly line workers; responsibility for other's safety, as in the case of airtraffic controllers; nonsupportive superiors; and work over load - have been alleged to be associated with an increased incidence of hypertension, myocardial infarction and other illness.

Much occupational stress seems to derive from feeling of lack of control. Among San Francisco bus drivers, hypertension was noted to be more prevalent among drivers than job applicants or the local population. An analysis of 2000 drivers and the conditions under which they worked indicated that the bus schedules were thought to be unrealistic and rigid and that the drivers were harassed and penalized for not maintaining them.

It has been suggested that not only job demands but also latitude of control in the job can strongly influence
maintenance of health and well-being. In laboratory tests of normal individuals given a timed task those tested reported less distress when they were allowed to select their own pace than when they had no control. Physiologically, they demonstrated lower cortisol levels when they were in control. In the Framingham study, a higher incidence of coronary heart disease was noted among woman having high job demands with less supervision.

The control hypothesis in the underlying explanation for how one react to stress. Not all stress is bad - Some type - those events that are perceived as new, interesting and challenging, for example - are often beneficial. At the other end of the spectrum is deleterious stress associated with fear, unsecurity, and doubt that may lead to loss of control over the situation and its out came. Lost control (or lack of it) can lead to a period of perceived struggle with increased neurohormonal activity (cortisol, catecholamines, angiotensin). The so-called hemodynamic overreactor responds to these situations with marked swings in blood pressure during the day, especially during working hours (Circadian pattern).

Awareness of the patients enviornmental - cultural background, socio-economic condition, work status family situation - can provide the insight for effective counselling intervention and prevention. By identifying detrimental factor in the environment
the physician can help to patients to find areas where change is possible or to cope with unchangeable aspect. This might prevent continuing stress and adverse health consequences.

**Cardiovascular System:**

Cardiovascular means pertaining to the heart and blood vessels or involving the heart and blood vessels. The cardiovascular system is sometimes called circulatory system. The cardiovascular system has the following three basic functions - (i) To transport oxygen and the nutrients to the cells of the body (ii) To remove metabolic waste products from the cells and (iii) To carry substances such as hormones from one part of the body to another. It is a well-organized transport system of the body by which blood is circulated within a closed system under different pressure gradients, created by the pumping mechanism where heart acts as a central pump. The cardiovascular system includes (i) Heart (ii) Arteries (iii) capillaries and (iv) Veins. They all differ in structure as well as function. The volume of blood in our body is limited but it has to perform unlimited amount of work continuously. This naturally lead to the conclusion that some quantity of blood must be used over and over
again. In other words blood must circulate. The cardiovascular disorder includes disorder of heart and blood vessels. There are two types of blood vessels:

(i) **Arteries** which carry out oxygenated blood, nutrients, and hormones to the cells of body and,

(ii) **Veins** which carry out deoxygenated blood, and metabolic waste product from the cells.

The heart has got four chambers. Two ventricles and two atria, both right and left. The two left chambers are separated from the two right ones, by continuous partition, the atrial portion of which is called the interatrial septum (fibrous) while ventricular part is known as the Interventricular septum (upper one fourth - fibrous, lower three fourth muscular). From the left ventricle arise the aorta (blood vessels) carrying oxygenated blood to the tissues. From the right ventricle, which is less muscular than left, arises pulmonary trunk (vein) carrying reduced blood to the lungs. The right atrium receives all the venous blood from the body through three vein's: The inferior Venacavae, superior venacavae and coronary sinus. The left atrium receives all the oxygenated blood from the lungs through pulmonary veins.

There are many type of cardiovascular disease such as coronary heart disease, arrhythmia, cardiomyopathy, hypertension,
stroke, ruhamatic heart fever, congental heart disease etc. But in the present study of the cardiovascular disorders main purpose is to see the association between psychological stress, type-A behaviour, mental health, socioeconomic status, life style, gender and hypertension, angina, myocardial ischemia.

The heart functions almost exclusively as an aerobic organ with little capacity for an aerobic metabolism. Even during resting condition 70 to 80 percent of the oxygen in the blood perfusing the coronary arteries is extracted by the myocardium. Because there is little capacity to increase oxygen availability by increasing oxygen extraction, increases of myocardial demand during exercise or the other stress must be met by equivalent increases of blood flow. Myocardial Ischemia results when the arterial bloods supply fails to meet the need of heart muscle for oxygen and metabolic substrate. In simple words ischemic heart disease is imbalance between the supply of coronary blood flow and the metabolic demands of the myocardium. This imbalance occurs either blood supply to the heart decreases and the demand of the blood of the heart increases. Even limited ischemia is likely to be evident from Angina pectoris while severe sustained ischemia is likely to be results in myocardial Infarction.

**Angina pectoris:**

Angina or Angina pectoris is a recurring discomfort or pain.
It occurs when blood flow through the coronary arteries (which bring blood to the heart muscles) is reduced. Due to reduced blood flow the blood supply to the part of the heart muscles does not meet the heart needs. As a result, the heart does not get enough oxygen and nutrients. This reduces blood flow to the heart muscles is temporary. The discomfort occurs most often during exercise or emotional stress. In other words, angina pectoris is transient imbalance between myocardial oxygen supply and demand. The root cause of angina is "Atherosclerosis". This is narrowing of coronary arteries by deposit of the fatty substances such as cholesterol. Anginal pain or discomfort is usually brief, lasting just a few minutes. People describe it as a heaviness, tightness, oppressive pain, burning, pressure or squeezing. Usually its located behind the breastbone. Some time it spreads to the arms, neck or jaws. It may also cause a numbness in the shoulders, arms or wrists.

Classification of Angina: Angina is divided into three categories:

1. **Primary Angina**: It is due to reduced coronary blood flow as a result of coronary arterial spasm and is also termed as variant / vasospastic / prinzmetal's Angina.

2. **Secondary Angina**: It is classical angina also classical as stable / effort Angina. It is associated with high grade
fixed coronary arterial obstruction and precipitated by increased cardiac work.

3. **Unstable Angina Pectoris**: It denotes a deteriorating anginal syndrome. It has also been called as intermediate coronary syndromes / acute coronary insufficiency / Preinfarction Angina / Crescendo angina.

**Myocardial Ischemia**:

The second severe manifestation of Ischemic heart disease or coronary heart disease is myocardial infarction or Ischemia. Thrombus formation or complete blockage of coronary arteries allows no blood pass through it to supply oxygen to the part or the heart muscles. The result is severe injury, destruction and death of that part of the muscles. The process is called infarction or cardiac infarction.

The location and extent of the infarct depend upon many factors. These include the size and location of nearby blood vessels, the degree of narrowing of unblocked vessels, the volume of the collateral circulation in vessels etc.

Blockage of any one of the major coronary arteries is usually followed by a cardiac infarct; blockage of any of the smaller branches rarely cause significant cardiac damage.
The frequency of the arterial involvements and the results of infarction are follows:

<table>
<thead>
<tr>
<th>Artery</th>
<th>Area</th>
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<tbody>
<tr>
<td>Left anterior descending left ventricle near apex;</td>
<td>Anterior wall of the anterior two-thirds of interventricular Septum</td>
</tr>
<tr>
<td>Right coronary artery</td>
<td>Posterior wall of the left ventricle, posterior one-third of the interventricular septum.</td>
</tr>
<tr>
<td>Left circumflex coronary artery</td>
<td>Lateral wall of left ventricle.</td>
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The quality and location of chest pain in myocardial infarction resembles angina pectoris. Severity may be mild to intolerable. Its duration usually exceeds 30 min and glyceryl trinitrate fails to provide relief. Other symptoms of myocardial infarction are left ventricular failure, syncope, severe fatigue, sweating and vomiting may predominate over or replace chest pain.

Major postulated risk factors for premature development of CHD includes:

1. **Dietary factors** - habitual diet high in saturated fat, cholesterol and calories.
2. **Blood chemistry** - elevated serum cholesterol or triglycerides, hyperglycemia.
3. **Organ system pathology and dysfunction** - Hypertension,
Diabetes mellitus, hypothyroidism, renal disease, gout.

4. **Living habits** - cigarette smoking, physical inactivity, overeating.

5. **Psychosocial factors** - Type 'A' behaviour pattern, Job dissatisfaction, status incongruity, role overload, etc.

6. **Familial factor** - family history of premature atherosclerotic or hypertensive disease and death therefrom.

The most frequently recognized cause of ischemic heart disease is occlusive coronary atherosclerosis, which either causes direct arterial narrowing or produced coronary obstruction by induced thrombus formation. Coronary narrowing may also occur secondary to stenosis of the coronary ostia produced by primary disease of aorta, coronary embolism, inflammatory disease of coronary arteries and congenital syndromes such as anomalous origin of a coronary artery from the pulmonary artery. Vasconstriction of an epicardial artery at the site of an atherosclerotic plaque may be significantly aggravate obstruction to blood flow. Coronary artery spasm, either in an angiographically normal coronary artery or it the site of an atherosclerotic plaque, may transiently interrupt blood flow and produce severe transmural myocardial ischemia. In occasional individual small coronary vessel constriction may limit myocardial blood flow and lead to ischemia during exercise or other stress. Regardless of these
precise cause a limited arterial blood supply in common to both mild or incipient ischemia and to severe ischemia, so that factors that determine blood flow will be central foci in the consideration of myocardial Ischemia.

High blood pressure (Hypertension):

Blood pressure is the pressure exerted by the blood against the walls of the arteries through which it flows. Blood pressure is highest each time the heart contracts and pumps out into the arteries. The reading at this time is called systolic, as sistole means heart contraction. The blood pressure falls to its lowest level when the heart is relaxing. This reading is called diastolic, as diastole means heart relaxation. Both these blood pressure readings are generally recorded as the higher systole pressure over the lower diastolic pressure, for example, 125/85.

Hypertension is not a disease or abnormality in the same sense of pneumonia or osteoporosis. The disease processes associated with a high arterial pressure are the consequences of the ensuing damage to arterial vessels on to target organs such as the kidney, brain and the heart. Hypertension is defined as a blood pressure reading of 160/95 mm Hg or greater. Approximately one half of the person who suffer a first heart attack and two thirds who suffer stroke have BP > 160/95 mm Hg.
Stress:

Numerous instances of sudden death after an emotional upset have been recorded. Evidence from new documents; any of the profound interrelationships of the brain and stress on human and animal physiology confirm the link between emotion and some illness, including sudden death.

Stress remains ill defined. In the context of this discussion, Stress is a body response to real or imagined event perceived as requiring some adaptive response and for producing strain. This definition allows differentiation between stress—the internally mediated adaptive response—and stressor—the stimuli. Stresses range mild annoyances to death threat. From momentary scare never-ending tension with a corresponding spectrum of responses.

Today, The term stress is more commonly used in a nonphysical sense. A contemporary definition offered by the first national conference on emotional stress and heart disease describes stress as "a obviously painful or adverse force which induces distress or strain upon both emotional and physical makeup." Appley and Trumbull point out that as a psychological concept, stress has been used not only to refer to extreme environmental or
psychosocial condition but also as a substitute for what one might call anxiety, conflict, ego threat, frustration or threat to security. Lazarus has suggested that we view psychological stress more broadly, including not only stimulus and response but also the intervening psychological experimental factors which ultimately determine stimulus response relationship.

Thus in the discussion of psychological stress it is apparent that the term stress affords little understanding. It means stimulus to some response to some, interaction to others, and complex combinations of conditions to others. Never the less, definition of the term psychological stress should recognize that behavior occurs at the interface between the environmental and the individual.

"The state manifested by the specific syndrome which consists of all the nonspecifically induced changes with in biologic system. Thus stress has its own characteristics form but no particular specific cause."

However for general orientation, it suffices to keep in mind that by the stress physician mean the common result of exposure to anything. For example - The bodily changes produced, weather, a person is exposed to nervous tension, physical injuries, infection, cold, heat, x-ray, any thing else, are what we call stress. This is what is left when we abstract form the specific changes that are produced only by one or few among these agents. In Selye's
earlier writing he had defined stress, somewhat more simply but less precisely, as "the sum of all nonspecific changes caused by function a damage or "the rate of wear and tear in the body."

(Hence Selye)

According to Hence Seley's "stress is defined as the state which manifest itself by the general adaptation syndrome (GAS). GAS companies: adreanal stimulation, shrinkage of lymphatic organs, gastrointestinal ulcers, loss of body weight, alteration in chemical composition of the body, and so forth. All these change form a syndrome, a set of manifestations which appear together"

Hense Selye's General adaptation syndrame (GAS) has been widely held as a comprehensive model to explain the stress phenomenon. This three stage modest states that when an organism is confronted with a threat, the general physiological response occurs in three stages.

ALARM REACTION:

The first stage includes an initial "Shock Phase" in which resistance is lowered, and 'counter-shock phase' in which defensive mechanisms becomes active. Alarm reaction is characterized by autonomous excite ability; adrenalin discharge; increased heart rate, muscle tone, and blood content; and gastrointestinal ulceration. Depending on the nature and
intensity of the threat and the condition of the organism the period of resistance vary and the severity of symptoms may differ from 'Mild invigoration' to disease of adaptation.

**Stage of Resistance**: 

Maximum adaptation occurs during this stage. The bodily signs characteristic of the alarm reaction disappear. Resistance increases to levels above normal. If the stressor persist, or the defensive reaction proves ineffective, the organism deteriorates to the next stage.

**Stage of Exhaustion**: 

Adoption energy exhausted. Signs of the alarm reaction reappear, and the resistance level begins to decline irreversibly. The organism collapses. A diagrammatic view of these stages is shown below:

![Diagram of General Adaptation Syndrome](image)
Selely considered stress a nonspecific response of the body to any demand caused by either pleasant or unpleasant condition. For Dohrenwend and Doherenwend (1969) "Stress has four elements" (1) antecedent Stress or, an agent that produce stress; (2) antecedent mediating factors, that increases or decreases the impact of stress; (3) the adaptation syndrome, that indicates an intervening state of stress and (4) consequent adaptive or maladaptive responses.

The word stress is often use to refers the stress reaction that are the thought of physiological responses, feelings and behavior, which occur in response to stressor. Stressor are harmful or unpleasant situations which put demand on one's coping skills e.g.- demands insults, assaults and frustrations. Exaggerated and unrealistic thinking can play a big role in creating stress. It should also be kept in mind that a situation or an event becomes stressor only when we see it as one, understanding our copying skills and then expectation of consequences of not coping. But these thoughts people increase their stress. Physiological responses can be induced by stress. They include change in blood flow and pressure, heart rate, breathing, muscle tension along with endocrinal secreation. Feeling that associated with stress are the anxiety, anger, tension, frustration and helplessness, which always increase the intensity of stress. We often feel stress when routine method for managing threats fail. The experience of stress is a very personal
matter. Each person develop his or her own characteristic way handling threat, his or her own routine for getting through like successfully and it is the breakdown of these individual patterns of coping with threat produce stress in that person. That way stress can also be defined as perceived threat. The perception of threat depends on the factors in stimulus as well as on the factors with in the individual, including one's intellectual resources, coping strategies and related personality predisposition. Induction of stress response depends on several mediating cognitive factors.

Stress is any stimulus or change in the external or internal environment of such a degree in terms of strength or intensity or duration as to tax the adaptive capacity of the organism to its limit and which in certain circumstances, can lead to disorganization of behavior or male- adaptation or a dysfunction which may lead to a disease (Rees 1976). In the same paper 'Rees' showed different type of stress occurring at the onset of various psychosomatic disorders like bereavement and associated grief reaction are very powerful psychological stress-powerful in term of the distress and disability caused and owefull in term of physiological disturbances induced, another important stress in any situation which threaten the security of a loved person in the life of the patients. The other stresses showed in that paper were related to family, marital and work problems and some time acute traumatic events.
Stress is highly energized psycho-physiological state when an organism is faced with a situation that threaten or placed unusual physical or psychological demand on it.

The extremes of this highly energized state are: hyper stress, where there is over activation or heavy demand in term of time or responsibilities; and hypo stress, in which the individual suffers from lack of activation, characterized by lassitude and boredom.

Pestonjee (1987), however has noted that it is natural and healthy to maintain optimal level of stress and opined that successes achievement higher productivity and effectiveness call for stress. When stresses are left unchecked and unmanaged, they can create problem in performance and affect the health and well being of the organism.

Stress is a personal response to a certain variation in the environment, stress can be differently perceived depending on (a) The nature and magnitude of the strategy; (b) the importance of the stressor to the individual; (c) the perception of the threat element as a component of the of the stressor; (d) the personal and social support system available to the individual; (e) The involvement and willingness on the part of the individual 'to do something' about the state of stress, Pestonjee has viewed sourcess of stress in light of social systems to which we all belong. There are two such a system. One is the primary system such as family and religions, regional and linguistic groups, and the other is the secondary
system to which we relate such as neighborhood, schools, colleges, technical institute and work organization. As the functional requirement and role expectation from both these system differ, the demands made on the individual in one system have their effect on his performance in the other, have their effect on his performance in the other, moreover, resources from one system and also be invested in the other system to take care of the problems arising in it.

He has defined three important sectors of life in which stress of life stress originates. These are (a) Jobs and the organization, (b) Social sector, and (c) inter psychic sector. The first namely, job and organization refers to the totality of the work involvement (task, atmosphere, colleagues, compensations, policies, etc.). The social sector refers to the social cultural context of one's life. It may include religion, caste, language, dress and other such factor. The interapsychic sector, encomposes those thing, which are intimate and personal, like temperament, values, abilities, and health. It is contended that stress can originate in any of these three sectors or in combination thereof.

Response to stress can be grouped into three categories (1) Physiological responses (2) Behavioral responses, including expressions of affect; and (3) Subjective state, self-reported (moss 1973). According to Selye (1956) physiological response to the stress involves these stages: (1) Alarm reaction; (2) T h e
stage of resistance involving an increased capacity for the organism to respond; and (3) Exhaustion characterized by a loss of functional capacity to continue. Physiological response is an increase in central, and autonomic nervous system activity as well as endocrinial physiological response inadequate blood pressure, respiration, vasomotor constrictions, galvanic skin response, as well as changes in endocrines activity. The magnitude of this physiological reaction has prompted observation to link it with disease. Thus Engal (1962) and Lowenthal and Chirbaga (1973) have suggested that disease may be a response to stress or in some instances it may be the stressor.

Behavioral response used as operational definitions of stress have included erratic performance rate male-coordination, increase in errors. Fatigue, preservative behavior and so on. Including among such behaviors as reflective of emotional state (and therefore of stress) are tremors, stuttering, exaggerated speech characteristic etc. The presence of emotional activity has been used post facto to indicate subjective state and usually refer to any bodily changes deviating from usual or normal states such as anxiety, fear, tension, reported somatic symptom, depression, and the like. In addition, interview and test responses have been utilized for such descriptive work (Pichot, 1971).

Stress response are divided into several pattern's: those
involving active copying "(Fight or Flight)", Those associated with an aversion situation or long-term monitoring (vigilance), and those characterized by subordination, in which active copying is attempted but is not successful. In the fight-or-flight reaction, the release of catecholamines raise the blood pressure and heart rate, with increased cardiac output and decreased total peripheral resistance. The vigilance response, which seem to mediated by the pituitary - adrenocortical system, result in elevated blood pressure with increased total peripheral resistance but deceased heart rate and Cardiac output.

Richard Lazarus elaborated the concept of individualized response to stress. Proposing that responses are determined by the manner in which person appraises and copes with stressful event. Hence, a person's reaction to stress depends on the appraisal of the event and the person's belief in his or her ability to manage or cope with the stress, the person's attitude regarding the significance of the outcome of the stressful event is also considered important. The reality of the stress is of less important than the person's cognitive assessment of it determining the subsequent emotional and physiological reactions.

Harold Wolff's fundamental premises was that disease is a failure or inability to adopt life stress Wolff's theory heralded the concept that they way in which a person is able to cope
with stressful event is a critical factor in determining the magnitude of subsequent physiological effects. Events are deemed to be stressful only if the person perceives that the stress threatens life, well-being or emotional security.

Wolff and Wolff also observed that the physiological state of the gastrointestinal tract appear to correlate with specific emotional state (hyper function with hostility and hypertension with sadness). Never the less, they regarded such reaction as relatively nonspecific, believing that the patient's reaction in determined by general life situation and perceptual appraisal of the stressful event. Wolff also emphasized that the capacity to adapt to a threatening events determines that nature and severity of phychophysiological response patterns. Familial discord, emotional deprivation, goal frustration, object loss, separation and unemployment were emphasized.

The term stress is used to connote a variety of meaning both by the common man and psychologist of different persuasion have given (a) stimulus-oriented (b) response-oriented (both physiological and behavioral) definition of the term and depth. (c) Psychologist have treated the concept from the etiological and psychodynamic viewpoints. It appears that under these circumstances the essential feature of the stress experience have not received the attention they deserve (Astruna 1983).
Stimulus oriented approach:

Stress is regarded as an external force, which is perceived as threatening. Some view threat itself as stress. According to Selye, any external event or any internal drive which threatens to upset the organismic-equilibrium is stress.

Response-oriented interpretations:

The nature of stress, it is claimed, can be understood best in terms of the way people perceive and ascribe meaning to stress producing situations, the values they attribute to actions and the way they interact with events. Stress cognition is conceived as pre-concepted; it is mere adjectival then motivational. Psychiatrist have defined four phases in the reaction to stress—the initial phase of anticipatory threat. The impact of stress, the recoil phase and post traumatic phase.

The response-oriented approaches describe how stress is reacted to, and how people function under stress. The biologically-oriented approach to stress is also response-oriented, it views the reaction of the organisms as attempt to come to term with environment.

The psychodynamic approach:

Concedes events external or internal which pose a threat
to the integrity of the organism leading to the disorganization of personality as stress. Stress presages loss of ego strength and loss of ego support. Stress may be induced by interpersonal (external) or interpsychic (between own impulses and ego) factors resulting in anxiety. The socially-oriented psychologist believe that the intrapsychic needs call into play mechanisms of perceptual selection, defense and vigilance. There are wide variations in reaction to stress and the capacity to tolerate it between the persons and in the same individual an different occasion. The most basic fact about stress is that, like feeling, stress is experienced. The feeling to stress is an act in which there is a reference not a causal relation, to an object that is intended or intentionally present.

As mentioned earlier, in phenomenological psychology man is considered as existing, consciousness is always being aware of something else. The act of feeling to stress is marked be a close reciprocal relation between the subject and its intentional object. Psychologists use the language of physics, mathematics or biology. What phenomenological psychology purpose is that psychological terms be used to describe experience and situation and be reducible to observable thing-predicates, that is, to terms which designate properties which can be determined by direct observation. Time and again doubts have been raised about the
guarantee that the phenomenological statements are true and not pure subjective opinions.

**X-Y-Z Model:-**

The national academy of Science's institute of medicine set forth a definition of stress and attempted to present an interdisciplinary and scientifically integrated model. Three major elements of environmental stress were identified: (1) The environmental activator, (2) The reaction to the activator (Stress reaction), and (3) The resulting consequences. The series is called the X-Y-Z sequence.

![X-Y-Z Diagram]

**Descriptions:**
- Organizational level
- Intensity
- Quantity
Temporal pattern

Evaluative qualities (for consequences only)

(Figure 1: The X-Y-Z model for stress modulation From G.R. Elliott, C Eicdorfer, editor: stress and human health: Analysis and implication of research, P Lq. Springer New York 1982.)

Activator can be potential or actual, depending on the meaning of the prospective stressor to the person and other circumstances. An activator is defined as any internal or external event or condition that can alter a person's physical or psychological state. Activator can be quantified and qualified on the basis of intensity, duration, frequency, and the part of body it acts on - that is globally or molecularly. If an activator becomes a stressor, its effect is considered to be sufficient reaction. A reaction to the activator (stress reaction) can also be quantified and described physiologically and psychologically: A reaction may involve many interacting equilibrium stabilizing mechanisms. Reaction can also be characterized as transient responses to specific activators. Consequence are considered to be the prolonged effect of reactions. Consequence may be biological, psychological, and sociological.

The X-Y-Z sequence (activator-reaction-consequences) is individualized and is determined by the person's appraisal of the event and the ability to cope. Mediators are qualities and
characteristics of the person that account for the variability in the psychological and physiological reaction-consequence. Mediators may be qualities (physical and psychological) of the person, the environment, or the social milieu that provide buffering (protective effects) or that impart vulnerability.

An essential aspect of the X-Y-Z model is the concept of dynamic interaction between the various components of the stress response system. Each part of the system interacts with and modifies the other parts. For example mediators may facilitate each aspect of the X-Y-Z sequence but change and be modified as a result of past responses and successes or failure of efforts to adopt.

The main value of the X-Y-Z model derives from possibility of identifying risk factors, the characteristics that appear to predispose a person to an illness. Risk-factor research in many respects basically probability assessment. In general, because of difficulties in the definition and measurement of stress and because of individual variability in responsiveness, the association between stress related variables and physical illness has remained satisfactory weak.

**Physiology:**

The central nervous system control cardiovascular functions through the baroreceptors and numerous afferent and efferent
neuroendocrine connections of autonomic nervous system. Animal experiments and clinical studies conclude that stress effects are mediated largely by increase in cortisol and catecholamines. These effect are further modulated by neuropeptieds, vagal stimulation, circadian influences, adaptive mechanisms, genetic, susceptibility, and the presence of disease.

In the conscious pig stressful stimuli can increase vulnerability to ventricular fibrillation. This effect is blocked by adaptation, intracerebral injection of beta blocker, or blockage of frontocortical projection to brainstem cardiovascular nuclei. It is postulated that the pathway goes from the frontal lobs to the frontocortical brainstem, stimulating autonomic outflow (norepinephrine), increasing cyclic adenosine manophosphosphate (CAMP) and decreasing extracellular postassiumions.

Stress responses are divided into several patterns those involving active coping ("fight & flight") , those associated with an aversion situation or long term monitoring (vigilance) , and those characterized by subordination, in which active copying is attempted but is not successful. In the flight or fight reaction, the release of catecholaminse raises the blood pressure and heart rate, with increased cardiac output and decreased total peripheral resistance. The vigilance response, which seen mediated by the pituitary- adrenocotrical system, result in elevated blood pressure
with increased total peripheral resistance but decreased heart rate and cardiac output.

In studies of psychosocial effect on mice, plasma cortisol of level were highest in submissive animals, lower in subordinate animals, and lower in dominant animals. Catecholamine levels shows opposite pattern, being highest in dominant animals. Similar patterns have been observed in an other animal groups and in human beings as well as three categories of human reactions have been described: effort without distress, effort with distress, and distress, without effort. In experiments with healthy subject performing a choice reaction task with a high degree of control or a vigilance task with no control, subject reported that they were pleasantly challenged by the high control tasks and felts some distress from lower, control task. Epinephrine increased in both, but cortisol decreased in former and increased in the later. The stress of public specking can increases platelet activation as well as serum level of catecholamines epinephrine and norepinephrine. Proprandol of treatment moderates the heart rate and systolic blood pressure during stress period but does not block the catecholamine or platelet responses.

It has been postulated that acute (copying) response to stress is designed to provide the necessary energy for fight or flight and to protect against loss of blood and metabolites.
Subordinate and submissive responses are also appropriate animal behavior, generally minimizing injuries while promoting survival to species. In the normal course of event, these responses are called in to play for short periods and are not harmful. On the other hand, it is important to consider whether or not these reactions lead to harmful disease processes, and if so how.

**Stress and Atherosclerosis:**

The metabolic and physical consequences of stress can affect the processes of atherosclerosis at any stage. The general features of atherosclerosis include the development of the endothelial dysfunction because of elevated cholesterol and other lipids, hypertension, smoking, diabetes, low estrogen states, and so on. Elevated catecholamine can increase blood pressure and homodynamic stress on endothelium, dysfunction can result. These homodynamic effects can contributed to plaque rapture, catecholamine can activate platelets, promoting thrombosis. Chronic vigilance of stress causes increased secretion of corticosteroids, leading in turn, to increased LDL cholesterol (LDL-C) and decreased high density lipoprotein (HDL). This can aggravated the atherogenic process, whereas an acute stress can accelerate thrombogenic process.

In studies of the extent of atherosclerosis in stressed and unstressed male macaque monkeys, stress was induced by frequent disruption of social groupings little disease was seen in unstressed
monkeys on low fat diets. On an atherogenic diet, dominant animals showed minimal lesion and subordinate animals had moderate disease. Conversely, among the stressed monkeys lesion were more prominent in dominant than in subordinate animals regardless of diet; however, the extent of atherosclerosis was magnified 30 fold on the high-fat diet. In studies of female macaques, dominant females seemed to be protected from atherosclerosis subordinate females and overiectomized females were as affected as the males in the same group, unstable grouping did not increase the involvement. Apparently disruption of social grouping that was very stressful to competitive males was not as stressful to the females, because they do not fight as aggressively for status as do males.

In human serum cholesterol level have been observed to rise during period of stress, such as medical student's examination period, soldiers' training with demolition weaponry, and anticipation of surgery. Triglyceride levels are even more liable. In the course of a stressful interview, blood lipids may rise as much as 50 percent.

Increased activity of the sympathetic nervous system influences lipid metabolism. Activation of alpha receptors and possibly angiotensin II may inhibit lipoprotein lipase activity, leading to elevated very low density lipoprotein (VLDL) triglyceride and decreased HDL cholesterol levels, sympathetic activation may also
increase cholesterol by impairing LDL clearance. In one study, cholesterol levels correlated positively with measures of depression, hostility, and emotional instability. They correlated negatively with motivation and happiness.

Stress has been shown to cause a sympathico-adrenal medullary alarm reaction, characterized by excess catecholamine secretion. Specifically, excess epinephrine is secreted under what the body interprets as stressful conditions. The outpouring of epinephrine raises blood pressure and heart and respiratory rates, hence neuromuscular transmission, elevated sugar by glycogenolysis, mobilized fat, redirect, homodynamic patterns to suit muscular activity, and, while increasing blood oxygenation, increase oxygen consumption. More specific B-adrenergic-medicated cardiac effects include the increase of heart rate, contractibility, conduction velocity, and a short arterivenous refractory period. Those catecholamine-mediated cardiac effects are through to be pathogenically related to adverse cardiac events.

**STRESS IN HYPERTENSION:**

Stress has long been considered both a precipitating factor and sustaining factor in hypertension. The majority of research shows increased cardiovascular reactivity in response to stress in hypertension patients when compared with normotensive people. In hypertensive patients stress produces greater increases in blood
pressure, heart rate, vasoconstriction, and the secretion of epinephrine and norepinephrine. Hypertension patients also show prolonged recovery times after stress. Chronic increased sodium retention also plays a role in the development and maintenance of hypertension. Hypertension patients lack the response to stress of increased filtration fraction and proximal tubule resorption of sodium that is seen in normal persons. Increased cell membrane sodium lithium countertransport has been seen in hypertension. Recently, epinephrine infusion has been shown to produce increases in platelet size, number and B-thromboglobulin in hypertension. Decreased level of substance P, which inhibits the stress-induced norepinephrine release, have been discovered in patients with essential hypertension. No difference have been noted in a2-adrenergic receptor and B2 adrenergic receptor density in comparisons of normal and hypertensive population. People with family histories of hypertensive regardless of their own hypertensive status, shows similar pattern of cardiovascular reactivity to physical and psychological stress. Studies involving other at-risk populations have found marked increases in blood pressure and cardiac output when caffeine intake is combined with mental stress. However, studies of chronically stressed populations found no increased incidence of hypertensive when they were compared with control and the general populations.
The control Hypothesis

I. Event
Anything from a traffic jam to a divorce

II. Perception
Fear, Uncertainty and doubt
(Leading to)
Loss of control (Perceived Struggles in which outcome is not manageable)

III. Physiologic response
Neurohormonal activation (Governed by genetic markers and environmental influence)

IV. Hemodynamic/Metabolic changes:
Acute arousal

V. Pathological Consequences
Contraction Band lesions
Endothelial cell Dysfunction
Atherosclerosis
Coronary heart disease
Coping Strategies:

Pestonjee has developed a model to explain how we cope with stress reactions. It is called the "bounce model" because the behavioral decompositions taking place due to stress tends to get reflected in interpersonal and other reactions. The reaction are received and analyzed by the environment which in turn, because back signal to the individual to bring about a change either at the organismic level or at the response level.

Bounce Model:

Stressors
1. Interupsvchic
2. External (Physical)
3. External (Social)

Response can be adaptive, effective and good.

Responses can be adaptive.

Response can be maladaptive or leading to decomposition.

Responses can be devastating.

Pestonjee has also discussed the recently developed concept of Burnout stress syndrome (BOSS) (Pair, 1982). BOSS can lead
to at least four type of stress related consequence such as, depletion of energy reserves, lowered resistance to illness, increased absenteeism and inefficiency at work. Veningle and Spradley (1981) have identified five distinct stage of BOSS.

**Honeymoon stage:**

This stage can be described as accounting for the euphoric feelings of encounter with the new job such as excitement, enthusiasm, challenge and period. Dysfunctional feature emerge in two ways: first, the energy reserves are gradually depleted in coping with the demands of a challenging environment. Second, habit and strategies for coping with stress are formed in this stage, which are often not useful in coping with later challenges.

**Fuel Shortage Stage:**

This stage can be identified as composed of the values, feeling of loss; fatigue and confusion arising from the individual's overdraw on reserves of adaptation energy. Other symptoms are dissatisfactions, inefficiency, fatigue and sleep disturbances leading to escape activities such as increased eating, drinking and smoking.

**Chronic Symptom Stage:**

Fuel shortage stage is followed by physiological symptoms which become more pronounced and demand attention and help
at this stage. Chronic symptoms are chronic exhaustion, physical illness, anger and depression. A sense of fatigue and exhaustion overtakes the individuals.

**Crisis Stage:**

When these feeling and physiological symptom persist over a period of the time, the individual enters the stage of crisis. At this stage, he develops a 'escape mentality' and feeling oppressed. Heightened pessimism. Self-doubting tendency peptic ulcers, tension headaches, chronic, backaches, high blood pressure and difficulty in sleeping are other characteristics of this stage.

**Hitting The Wall Stage:**

This stage of BOSS in characterized by total exhaustion of one's adoption energy which may mark the end of one's professional carrier. While recovery from this stage elude some, others may be resourceful enough to lied over this crisis.

Contrary to BOSS, rust stress syndrome (ROSS) is another phenomenon, which is indicative of the stress under load. It occurs when there is a gap between what the executive is capable doing and what he required to do.
Positive Role Of Stress:

Present-day researcher and practitioners visualize the phenomenon of stress in a new perspective. As kets de Vries (1979) had noted, each individual need a moderate amount of stress to be alert and capable of functioning effectively in an organization. It is important to note that this list of organizational stressors associated with creative owner-managers are not empirically validated but simply, Pestonjee's speculation in the light of characteristics of the creative person the nature of the creative process and the requirements of organizational context. He, however, quoted an empirical study conducted by Pamperin (1983) to support his hypothesis that creative managers are susceptible to greater stress than non-creative managers.

Type- A Behavior :

At the end of the 1950 's the American cardiologists Friedman and Rosenman described a specific overt behavioral disposition (type A) that was associated with the prevalence of coronary heart disease (CHD) and MI in middle-age men and women. (Friedman & Rosenman 1959; Rosenman and Friedman, 1961).

The type- A behavior pattern is not the same as "Stress". It represents neither a stressful stimuli nor a distressed response, but rather it is a style of behavior with which some persons
habitually response to circumstances that arouse them (Jenkins 1979). The pattern can be reliably rated and is a deeply ingrained, enduring trait.

Type-A behavior is nothing but a particular way to responding to every day life situation. In the western collaborative group study (WCGS) and other studies of middle class American men, those with extreme type A pattern had two to four times the risk of developing CHD as individuals lacking type-A characteristics (Type-B).

Type-A behavior pattern in its extreme manifestation is alleged to represent a lightly woven tapestry of habits, goals, characteristics modes of striving, achievement motivation and certain personality traits. Person displaying this behavior pattern are overtly competitive, aggressive or even hostile, exceedingly demanding of self and others, chronically restless, impatient and time conscious. According to Friedman (1969) Type-A behavior refers to a characteristics actions emotion complex which is exhibited by those individual who are engaged in a relatively chronic struggle to obtain an unlimited number of poorly defined things from their environment in the shortest period of the time and if necessary against the opposing effort of others things or person in their same environment.

The type-A coronary-prone behavior pattern has been defined as a action-emotion complex that can be observed in any person
who is aggressively involved in a chronic incessant struggle to achieve more and more in less and less time and if required to do so, against the opposing efforts of others things or other person (..) stemming from a fundamental and irretrievable sense of insecurity about the intrinsic value of the personality involved (Friedman & Rosenman, 1974). Glass (1977) conception of type A behavior includes; type A persons tend to: perceive time pressing and urgency rather rapidly; exhibit deteriorating performance on task that require delayed responding; arrive earlier for appointment and sit at edge of the chair; become aggressive and hostile when frustrated; have high motivation to exert control over physical and social environment. Work for maximum capacity even when there is not a time deadline. This specific overt behavior pattern was characterized by-

(1) An intense, sustained drive to achieve self-selected but usually poorly defined goals;
(2) Profound inclination and eagerness to compete,
(3) Persistent desire for recognition and advancement,
(4) Continuous involvement in multiple and diverse function constantly subject to time restrictions (deadline).
(5) Habitual propensity to accelerate the rate of execution of many physical and mental functions.
(6) Extraordinary mental and physical alertness.

Type–A behavior pattern is thus a characteristic style of
responding to and coping with environmental challenge. The Type-A behavior represent neither stressful situation or stressor, nor a distress response but rather it is style of overt behavior with which some person habitually respond to the life situation or circumstances, either pleasant or troubling that arouse them.

Type-A behaviour pattern is marked by exaggerated hurry, impatience, hostility, competitiveness, and achievement striving mark the type-A behavior pattern. Type-A persons typically eat fast, talk fast, walk and drive fast, and become singularly upset when others slow them down. The type-A person looks very alert and seems prepared to move quickly. His or her movements are abrupt gestures emphatic and speech staccato.

They have O "Short Fuse" for becoming angry- not all type persons have all of these behavioural features. The strong presence of several of them on the moderate presence of some what more, or enough to classify a person as type A. Type-A individual feels a greater need to be in control. They become upset when thing do not proceed according to their plan and events go beyond their control.

People who don't have these extreme traits are called type 'B'. The converse Type-B behavior pattern, originally defined on the relative absence of type-A behavior, is increasingly perceived
as an alternative style of responding to, or coping with environmental challenge. Extreme types 'Bs' in general manifests the opposite of type-A behavior. They are more relaxed and easy going, less hostile and overtly competitive and might be described as more subdued. They are not necessarily free of stress but rather confront challenge and external threats, less frequently unlike type A, they sow little evidence of multiphasic thinking and thus are infrequently observed doing two things at once. Vocational and avocational pursuits are managed in more casual fashion. The type B's appear to be coping in a different manner.

Wright (1988) has projected a slightly different picture or type 'B' (TABP) in CHD: A sense of time urgency not over large amount of time but over seconds, changing lane to save a few care length, A chronic activation level-being keyed up most of the time every day; A multiphasic quality the tendency to be engaged in multiple task that need to be done at the same time.

Type A's exert greater than B's to master events which they feel threat their sense of environmental control in contrast to B's type A's work hard to succeed. Suppress subjective state (Like Fatigue) that might interfere with task performance, exhibit rapid pacing of their activities, show little tolerance for interruption and express hostility after being harassed in their efforts and task completion all we submit in the interest of asverting control over environmental demands and requirements. Pattern A behavior
might thus be conceptualized as a characteristics style of responding to environment all stressor's that threaten the individual sense of control. Type A's always engage in a struggle for control whereas type B's are relatively free of such concern and hence, free of characteristics pattern A traits (Glass 1977).

The exploration on the psychological characteristics of the type-A coronary prone behavior pattern have focused to a large extent on the dimension of controllability (Glass 1977). A series of experimental studies (with colleged-aged subjects ) on various aspect of control controllability suggests that type A behavior may reflect a specific inclination to cope with stress full characteristics of the environment. This susceptible psychological disposition appear to be appreciably correlated with physiological mechanism that facilitate sympathetic nervous system activity, and with specific neurohormonal processes. The discharge of catecholamines (in particular nor adrenaline), that are known to contribute to the development of CHD. In this manner, the dimension of controllability may control to both the psychological and pathophysiological components of type A behavior (for a more extensive discussion cfr. matters 1982). Another possible important dimension of pattern A behavior, that is based on the speech characteristics of the silent ischemia (SI) includes degree of self-involvement (mathews 1982). Finally it should be noted that the scarce but intriguing experiments on are development of type-A behavior in childhood
indicates that the type-A behavior pattern is probably induced through specific mother child interaction (Methews 1978, Methews and Angulo 1980). Ever escalating parental standards of performance, in particular with respect to achievement striving when mediated through high parentenal expectation and aspirations frequent approval and disapproval a competitive and involved attitude, and authoritative discipline techniques probably play a decisive role in the development of type-A behavior in childhood result of different studies (Rosenman and D. Andrade 1959, C.P. smith 1969, Wenterbottom 1958, C.F. Part 1972, Karen mathews 1977 et al) showed that enentuate in certain type-A characteristics. On other hand child rearing practices of type-A mothers may encourage pattern A-behavior in their children. Biller (1971) studied that pattern A is more directly influenced by the practices of the father after the age of five year but before that age, a models the behaviour of his mother. There are closer and more frequent contacts between mother and child during early years of children when male children grow older and identify with the father. Their behaviour pattern and that of the father name become increasingly similar. Some evidence suggests that a slight genetical component may also be involved in this development (Brotner et al. 1970, Mathews & Krantz, 1976).

Costa and McCrae (1992) portray currently, two components of type A- **(a) Angry hostile:** characterized as frequent and
intense experience of anger, frustration and rage and
(b) Antagonistic hostility: marked by cynicism, rudeness, condescension, and direct expression of anger have been found as most valid predictor of coronary heart disease (CHD). Type-A men have been found in both prospective and retrospective studies to have increased prevalence and incidence of CHD and of myocardial infarction and angina pectoris. Since the chance of recurrent and fatal myocardial infarction also associated with type A behavior, it appears that this behavior pattern both increases the probability of developing manifest CHD and influence its severity. This pattern is an overt lifestyle characterized by extreme competitiveness, drive for success, impatience, restlessness, hyperalertness and a subjective sense of time urgency and pressure of commitments and responsibilities. Studies have shown that man with a type-A behaviour pattern tend to have elevated plasma triglyceride and cholesterol values, hyperinsulinemic response to a glucose challenge, and increase adrenal secretion of noradrenaline.

Diagnosis of the type-A or type B behaviour pattern involves a standard semistructured interview aimed at eliciting the flowing information: level of Drive, ambition and competitiveness, degree of involvement in work and other activities subject to deadline, intensity of the sense of time urgency; level of past and present hostility, intensity of desire for achievement and recognition; degree of tendency to speed up habitually physical and mental activities;
and amount of display of motor expressive features, such as rapid and explosive speech, abrupt body movements, tensing of facial muscles, and hand gestures. Psychodinamically oriented workers claim that an obsessive - compulsive neurotic personality style underlies the type A behaviour pattern.

Certain personality attributes, inherited or learned during childhood, predispose a person to react and act in a manner described as type-A behaviour pattern. Such behaviour, however, depend for its full expression on living in a social environment that provides opportunities and rewards for competitive striving affluent societies are characterized by a value system and socio-economic conditions that allows extreme form of type-A behaviour to flourish. Further, the ubiquity in such societies of such living habits as cigarette smoking, excessive consumption of a diet rich in saturated fats and calories, and physical inactivity adds a set of factors that, in conjunction with restless striving, predispose to CHD. In addition, frequent exposure to information input that are excessive, novel, attractive, discrepant or threatening characterizes living in technological societies and results in frequent affective and autonomic arousal, which is accompanied by the increased secretion of catecholamines. The catecholamines increases the oxygen requirement of the myocardium, relase free fatty acid (FFA) from body fat deposits, increases heart rate, and contribute to the elevation of blood pressure. These sympatho-adreanal
concomitant of emotional arousal may, thus, contribute directly and indirectly to atherogenesis and CHD.

Personality factors may play a pathogenic role in several way. Aggressive persons, with high drive levels and perseverance, have ample opportunity to engages in competitive striving. They strive for enjoyment of activity and rewards, other may follow a similar behaviour pattern as a defensive strategy against anxiety, depression or a guilt feelings. For them, striving is liable to be subjectively related to be a need for approval. Thus, The coronary prone behaviour pattern may be the final behavioral path for a variety of personality traits, motives, conflicts, and coping styles. Further, persons impeded in their striving and frustrated by conflicts and failures in interpersonal and occupational areas are liable to feel discontented and cope with it by excessive smoking or overeating, for example, and thereby increase their chance of developing CHD. The confluence of there sets of psychological and social factors, through a number of physiological and biochemical pathway may predispose to CHD.

The best known hormones secreted by adrenal medulla are epinephrine and norepinephrine. These catecholamines are related to sympathetic nervous system activity. Different researches on stress suggest that epinephrine is associated with fear or passive responding while nor epinephrine is associated with anger or
aggressiveness. The discharge of catecholamines is believed to potentiate platelet aggregation and this discharge of catecholamine increase with individual engaged in an active struggle to master uncontrollable stimuli. Given the characteristics of type-A we might expect that such subjects. In a study of Friedman et. al. (1975). Type A's exhibited enhanced plasma norepinephrine levels in response to competitive situation whereas type B's did not show this type of responsiveness. Data indicate that extreme type A's excrete more norepinephrine during active working hour than do type B's. (Friedman et. al. 1960). The mechanisms through which type A behaviour operates are conjectural, However, the prevalence of certain biochemical and physiological phenomena appear highly associated with fully developed type-A behaviour. These include elevated serum triglyceride; enhanced platelet aggregation, faster clotting time; higher excretion of norepinephrine; particularly when provoked by emotional challenge, a higher average serum level of corticotropin; a greater insulinemic response to glucose; a decreased growth hormone response to originie; and greater lability and magnitude of blood pressure response under time demand tasks.

**Mental Health**:

For many Americans, our health - Particularly our mental health is often taken for granted until something goes wrong.
Only then do we realize just how important health is to our sense of fulfilment and happiness. After all, in today's fast-paced, technological world, there are often a variety of quick treatment for physical ailments but not so for mental ones. If treatment for mental health takes time and patience for maximum effectiveness. In order to understand exactly what is meant by "Mental health", we need to first define what the overarching concept of "health" means.

In the past, scientists defined health simply as "an absence of disease or illness". However when world health organization (WHO) was founded, the following definition of health was established: "A complete state of physical, mental and social well being and not merely the absence of disease or infirmity". Looking at this definition, we realize that individuals can at once be relatively healthy in some aspect of life (e.g. normal blood pressure of 120/80 mm. Hg, but unhealthy in others (e.g., suffering from depression). Thus being healthy is not an "all-or-nothing" principle.

It is easy to assess physical health by taking health status measurement of the body. Blood pressure, temperature, and cholesterol levels, are all precise means by which can tell if the physical components of the body are healthy. However, mental and social components of health are much more challenging
to assess. Thought and perceptions of internal states are subjective and difficult to quantity what then is mental health?

Mental health, as defined by the surgeon General's report on mental health, "Refer to successful performance of mental function, resulting productive activities, fullfilling relationship with other people, and the ability to adapt to change and cope with adversity". On the other hand of the continuum is "mental illness", a term refers to all mental disorders.

In 1950, a WHO expert committee on mental health reviewed the various definition of mental health and observed "Mental Health", as the committee understands it is Influenced by both biological and social factors, It is not a static condition but subject to variation and fluctuation of degree, the committee's conception implies the capacity in an individual to from, harmonious relation with others, and to participate in, or contribute constructively to, changes in his social and physical environment. It implies also his ability to achieve harmonious and balanced satisfaction of his own potentially conflicting instinctive drives in that it reaches an integrated synthesis rather then the denial of satisfaction as a means of avoiding the thwarting of others. According to dictionary of behavioural sciences "Mental health a state of delativry good adjustment, feeling of well being and actualization of once potentialities and capacities."
A sound mind in a sound body has been recognized as a social ideal for many centuries. The Indian sages and seers have paid particular attention to the unconscious, wherein lay the submerged unfilled desire and compulsion of several kinds which led the individual astray, by mastering their mind, they attained the highest level of emotional equilibrium. Mental health is thus the balanced development of the individual's personality and emotional attitudes which enable him to live harmoniously with his fellow-men. Mental health is not exclusively a matter of the relation between person, it is also a matter of relation of to the individual towards the community he lives in, towards society of which the community is a part and towards the social institution which for a large part guide his life determine his way of living, working, leisure and the way he earns and spend his money, the way he sees happiness, stability and security.

Mental disorders are health conditions that are characterized by alteration in thinking, mood or behaviour (or some combination thereof) associated with distress and/or impaired functioning. This notion of a continuum sees mental health as successful mental functioning compared to mental illness on the other end as "impaired functioning".

A key to understanding mental health and mental illness is defining these terms in cultural context. The western notion of mental health divides overall health into three realms; the
Eastern notion views health in terms of bodily systems working in harmony. Imbalance or "disharmony" is the cause of illness and result from physical, psychological, nutritional, environmental or spiritual influences tipping that balance.

Without being mentally healthy, an individual cannot consider herself "healthy" in the true sense of the word. More importantly, however, mental health affects our physical and social health. Researchers in health psychology have conducted numerous studies where mental disorders such as depression or social support have affected the outcomes of pregnancy, gastrointestinal disorders, and heart disease. Patients with angina pectoris and myocardial infarction show a tendency to anxiety compulsiveness somatic concerns in response to stress, and lower pain threshold long before their illness. These differences are relative. Widely accepted by clinicians are the emotional precipitants of angina. Anger anxiety, elation, excitement - state sharing heightened autonomic arousal - are able to trigger and exacerbate anginal attacks. The mediating physiological mechanisms may include coronary artery spasm due to the vasoconstrictor action of this vagus and transient myocardial ischemia caused by effect of adrenaline on the myocardium. Anxiety evoked by anginal pain and its threatening meaning. May increase the frequency and severity of the attacks. Nocturnal anginal attacks can be precipitated by frightening.
The psychophysiology of the heart continues to be important when someone is taken to the hospital with severe angina or MI. Angina and MI and precipitate an acute psychiatric disorder. The disorder of adjustment can compromise acute cardiac status through their affects on cardiac physiology and treatment compliance. Many studies have found anxiety to be increased in MI patients, compared with healthy population. Comparison with other medically group has yielded less significant differences. Some MI patients may need longer them usual stay in coronary care units (ICCU) and additional psychosocial support.

Anxiety generally beings to decline after the first few days in ICCU. As the implication of cardiac imprimment are realized, depression or disruptive behaviour may beings. The most important immediate in response to myocardial infarction (MI) fear and minimization of danger, respectively intense fear may contribute to onset of lethal arrhythmias. Minimization or, as some writers prefer to call it, denial, interferes with the decision process to seek immediate medical help. The resulting delay in initiating treatment may be fatal. Two alternative explainations have been offered for the delay: denial as a defence against death anxiety, coupled with a tendency to rationalize the symptoms as not related to the heart; and minimization of the significance of the symptoms to avoid the acceptence of the helplessness of being sick. Patients with the history of a previous myocardial
infarction or angina tend to delay calling for help more than do young persons having their first experience of chest pain or dyspnea. Denial in its various forms can became significant. Denial of the illness appears to be maladaption, with subsequent problems related to work, sexual life, physical activities, and cardiac mortality. Denail of the effects of the illness associated with more favourable emotional out come but weekly associated with increased mortality. Conscious supression helps decrease emotional distress but doesnot have an effect on disability or cardiac status. Information about the meaning of the weekness after experinced, the extent of disability to be expected, and the role of patient in cardiac rehabilitation can be powerful antidots to acute anxiety. Occastionally benzodiazepine are necessary to optimize coronary care.

Psychosocial factore are important in determining the degree of functional recovery and adjustment after a myocardial infarction (MI) or the onset of angina. More than 50 percent of patients hospitalized for treatment of ischemic heart diseas show madrate or severe depressive symptom or anxiety. The more severe the disease, The more chronic the depression. Nearly half of all MI patients show depressive symptom but only about 20 per cent have a major depression (Similar rate are seem in those patients coming to cardiac catheterigation).The depression
is not predicted by the severity of the cardiac disease but is increased in the presence of other noncardiac medical illness. Depressive symptoms generally improves over the next three to four months, but major depression does not. The most disturbed patients tend to be those who had been tense and upset before hospitalization in response to family, occupational, financial and other problems. On discharge from the hospital after myocardial infarction (MI) or severe angina pectoris, crucial task is to avoid patients' disability unwarranted by his acute cardiac impairment. About one of every six cardiac patients fails to return to work because of psychological reasons. Their reaction represents psychogenic invalidism. Since about two million infarction occurs in the United States annually, the social and economic consequences of psychogenic disability are formidable.

Several types of response to and coping with manifest CHD may be distinguished: (1) realistic acceptance of the damage and judicious attempts at full attainable rehabilitation (2) excessive dependence with or without conversion depressive or anxiety symptoms and related to perpetuation of the sick role; (3) minimization (denial) of the significance of the disease and attempts to live as if it did not exist; (4) The use of heart disease to manipulate and control others by playing on their sympathy and feeling of guilt.
These response and copying strategies, adoptive and maladaptive are influenced by personality, family and medical factors, person who habitually deny or minimize and threatening significance of event tend to do so after a myocardial infarction; 20 percent at 345 men interviewed about 3 week, after hospitalization for a first myocardial infarction explicitly denied that they had suffered a heart attack. Such patients tend to disregard medical advice on restrictions of physical activity and smoking. Person who fear dependence, passivity, and enforced incivility are also liable to fail to comply with medical management and rehabilitation advice. In contrast, persons characterized by trait anxiety and habitual over concern about bodily intergrity tend to respond to the heart attack with an over anxiety neurosis and hypocondroasis. Patient's complaining of left chest pain after an infarction have high neuroticism scores and are frequently disabled out of proportion to their cardiac impairment. They refuse to resume their vocational, recreational and sxsexual activities. Wynn (1967) found unwarranted psychological distress and invalidism, in 50 percent of 400 cardiac patients. Some patients fear that any activity will be fatal, and they phobically avoid it. One should distinguish disability due to anxiety or depression from that caused by conscious or unconscious psychological and social gains from the illness. The therapeutic approach must be different in these two groups of patients. These disabled by psychiatric disorder may respond to adequate information,
reassurance. The cause of major tranquilizers or antidepressant, and, in some cases, interpretative psychotherapy dealing with the underlaying conflicts and guilt feelings. Patients who derive primary therapy and to help in finding more adaptive coping strategies.

**Socio-Economic Status:**

Status is an important component of social structure. It means 'Standing of an individual in a group. In simple terms, its refers to location of position of an individual relative to other members either within group or society. Social scientists have defined status. "As a position in a social aggregate identified with pattern of prestige symbol and action."

In traditional society most of the status used to be ascriptive in nature where as in the modern society a large number of status can be achieved through open competition. According to Baried Illesley the most important specific status uses may be (1) Economic status (2) Political status (3) Intellectual or educational status (4) Cultural status (5) Physical status (physical strength or attractiveness) (6) Occupational status (7) family Status (Social status of Family)

By the term of Social-economic status, we mean any group of persons coming closer to each other an the continuum of
occupation, education, income and culture. The most widely accepted definition is that of Chapin (1928). According to him "Social-economic status is the position that an individual or family occupies with reference to prevailing standards of cultural possessions, effective income, material possessions and participation in group activity of the community."

Socioeconomic (SES) factors influence health. The lower the Socioeconomic status, the higher the rate of many diseases. At any one point in time, markedly different CHD rates may be observed between Socioeconomic sub group of the population, as defined by occupation, education, income, or other measures. As a group becomes affluent, its members use their new wealth to purchase high-fat and high-salt foods, tobacco, products and automobiles. Less affluent group lag behind this development, achieving access to there deleterious behaviors later. Affluent groups then learn about and adopt healthful lifestyles, reducing deleterious behaviors. Again, less affluent and less educated groups lag behind, eventually exceeding the rates of CHD is those educated groups whose CHD rates have begun to fall.

Currently person with low SES are at high risk for CHD. A number of mechanisms may explain this. First, risk factors for atherosclerosis such as smoking, hypertension, obesity and sedentary life style, are higher in persons with low SES. Second, some of these risk factor, as well as psychosocial responses to stressors, may increase exposure to CHD triggers in these groups. Finally, these groups may have less access to care such as poor nuteritition, poor medical care, and have infectious burden.
The relation of SES to CHD risk has changed over the last 40 years in industrialized nations. In the earlier era in industrialized nations and currently in developing countries, persons in higher SES have been at higher risk to CHD than their more disadvantaged neighbours. A reversal in this risk gradients has taken place, however, so that in most western European countries and the US and Canada, persons at lower levels of occupation, education, and income have now come to be at far higher risk for CHD and coronary death than their advantaged fellow citizens (Kitagawa and Housers, 1973, Jenkins and Zyzanski 1980, Marmot 1981). Areas with high unemployment rates, high percentage of unskilled labours, low medium education, and high frequencies of substandard or overcrowded housing, tend to be the ecological areas with the highest rates of cardiovascular death and disability.

The mechanism of action is unproven, but there are probably several. Population surveys have shown people of lower SES in USA to have higher averages blood presser, relative weight, and to smoke more cigarettes. One study has shown CHD patients with lower education to have more malignant ECG patterns on monitoring then similar patients having average or higher education (weinblatt et al.s 1978.)

There are abundant data including that the increase in death rate from any cause in both genders and in white and
black Americans is related to a variety of socioeconomic features, particularly education and income. There has been perception that conventional risk factors cluster in the lower socioeconomic groups and that this phenomenon can explain the increased incidence of atherosclerotic coronary heart disease. However, only about 50% atherosclerotic coronary heart disease can be explained by known risk factors. The socioeconomic status proved to be independent predictors in patients with established atherosclerotic coronary heart disease. Adjusting for other variables stable and post myocardial infarction patients of higher socioeconomic status have a more favorable clinical course. Studies of longer duration, with adjustment for multiple known risk factors, demonstrate on increased relatives risk for study participant of lower socioeconomic status. Other studies have one concluded in the united states and Europe and the result are similar. An instructive study involves 17,530. British civil servants who were initially educated in 1968. This well done study demonstrated a coronary mortality rate 3.6 times higher in a group with the lowest SES. Kaplan and Keli review the published data and make a convincing case for the role played by socioeconomic status in the natural history of coronary heart disease. Although no simple relationship between socioeconomic status, risk for cardiovascular disease and long term out come for manifest atherosclerotic coronary heart disease can be devised, the evidence
is no consistent and persuasive that lower socioeconomic status is an independent and significant determinant of long term outcome.

It is well established that health depends on socioeconomic circumstances, but the biology of this relation is not well described. Psychosocial factors operating throughout the life course, beginning in early life, influence a variety of biological variables. Research with non-human primates shows the effects of dominances hierarchy on biology, and similar metabolic differential are evident. The neuroendocrine, "fight or flight" response produces physiological and metabolic alternation which paralleled those absorbed with lower socioeconomic status. The biological effects of the psychological environment could explain health inequalities between relatively affluent group.

The quality of nurturing seen to have long-term effect relevant to health inequalities. Deprivation in childhood is linked to poor educational attainment and behavioral problems such as hyperactivity and other conduct disorders, which may be precursors of a lifetime of material and emotional insecurity. Studies of the attachment patterns of their parents and children suggest that early experiences of caregivers may contribute to the intergenerational transmission of physical and psychological vulnerability, we can view childhood social disadvantage, there
for, as a first sign of an unfavorable stress history. This risk may interact with other early factors, such as low birth weight, which are associated with lower parental social class, to produce adverse effect an later health such early life influence should not be taken to imply a fixed trajectory. Studies of young rhesus monkey suggest that the consequences of experimental social isolation can be modified with timely intervention, and that long term effects are most likely to be seen under stressful condition in adulthood. Psychogenic dwarfism is an extreme but usually reversible syndrome associated with severe childhood deprivation. Psychosocial retardation of a less dramatic nature was unintentionally documented in Widowson's famous study of orphaned children in postwar Germany. Under identical food rationing there who lived; in the Beinenhous orphange, initially under the control of the stern and forbidding Frafilein Schwarz gained less weight and grew more slowly than children carried for at the Vogelnest orphanage by the affectionate Fraulein Gurn. By chance, Schwarz replaced Grun during the study and the growth rates reversed, despite the provision of extra food at Vogelnest. The limited evidence from lifelong follow up studies that included premature cardiovascular death is sensitive to early deprivation while cancer and risk of death non-cardiovascular, non-cancer causes depends more on adult circumstance.
LIFE STYLE:

Living habits or lifestyle promote cardiovascular diseases in both sexes and at all ages, but at different strengths. Ingrained in the American lifestyle are major modifiable risk factors including cigarette smoking, alcohol consumption, elevated lipid levels, hypertension, over weight, sedentary life style, physical inactivity. These risk factors contribute powerfully to cardiovascular disorder and highly prevalent in the population. Trends in their prevalence and differences in their impact on the various atherosclerotic sequelae are noteworthy. Lifestyle is the characteristics mode of living of person, of the way in which he pursues his goals.

Cigarette Smoking:

Strong dose-responsive relationship between cigarette smoking and CHD have observed it both sexes, in the young and the elderly, and in all racial groups. Cigarette smoking increases risk two to three fold and interacts with other risk factors to multiply risk. There is no evidence that filters or other modifications of the cigarette reduce risk factor. Passive smoking also increases CHD risk. Pipe smoking and cigar smoking, when not in hold, as well as oral tobacco use, whether chewing tobacco or snuff, carry rather small risks
but are related to later resumption of cigarette smoking. Clearly, cigarette smoking remain a leading preventable cause of mortality. Much of it due to cardiovascular disease. Pathophysiologic studies have identified a randomly of mechanisms through which cigarette smoking may cause of CHD. Smokers have increased levels of oxidation products, including oxidized low-density lipoproteins (LDL). Cigarette smoking also lowers the cardioprotective level of high density lipoproteins (HDL). These effects along with direct effects of monoxide and nicotine, produce endothelial damage. Possibly through these mechanisms, smokers have increase of vascular reactivity. Cigarette smoking is also related to increased levels of fibrinogen and increased platelet aggregability.

**Physical Inactivity:**

Physical inactivity roughly doubles the risk of CHD. Data linking sedentary life style with CHD derive from numerous lines of evidence including animals' studies, observational studies, and clinical trails examining the effect of exercise on risk factors and clinical endpoints. Moderate intensity exercise reduces coronary atherosclerosis and windens coronary arteries in monkeys fed on atherogenic diet compared with monkeys fed the same died but forced to be sedentary. Physical
activity slow progression of angiographically defined coronary atherosclerosis in human. Over established that physical fitness, on the job physical activity and leisure time physical activity and leisure-time physical activity reduce the risk of CHD. The greatest reduction in risk is between sedentary individuals and those who do regular moderate intensity activity. Smaller gains are achieved by participating in high-intensity as compared with moderate-intensity activity. In addition to decreasing myocardial oxygen demand and increasing myocardial efficiency and electrical stability, other potential mechanisms by which physical activity may reduce CHD risk include increasing HDL, reducing blood pressure, reducing obesity, improving insulin sensitivity, decreasing platelet aggregation and increasing fibrinolysis.

**Obesity:**

Approximately one-third of the U.S. adult population is obese, and the prevalence is increasing. Obesity promotes insulin resistance hyperinsulinemia, hypertension, hypertriglyceridemia, low HDL cholesterol and LVH. Many observational studies have found that obesity strongly and positively correlates with the risk of CHD in univariate analysis. In general, the greater the degree of overweight, the higher
the risk of coronary mortality. The central distribution of body fat (typical male pattern abdominal obesity) predicts CHD in men independently of body mass-index and other major risk factors. Weight loss improves insulin sensitivity and glucose disposal, reduces blood pressure, triglycerides and LVH; and increases HDL cholesterol.

**Alcohol Consumption:**

Heavy alcohol intake is associated with increased risks of death from several causes and is a major public health concern. However cross sectional, case control and prospective cohort studies indicate that mild to moderate alcohol consumption is associated with reduced rate of CHD compared with abstainers. These studies suggest a J-shaped relationship between level of alcohol consumption and total mortality such that a protective effect is apparent at low levels of consumption (one to two beverages daily) while there is substantial hazard among heavy consumers. In large part, this does dependent balance, reflect summation of three effects: (1) a positive association between alcohol use and cancer (2) a U-shaped relationship between alcohol use and total cardiovascular disease due to increased risk of cardiomyopathy, sudden death, and hemorrhagic stroke among
heavy drinkers, and (3) a well-established L-shaped protective effect for coronary disease. Several mechanisms are important in the cardio protective effect of moderate alcohol use. Alcohol intake increases total HDL-cholesterol level as well as HDL2 and HDL3 cholesterol. Alcohol consumption also has potentially beneficial effect on fibrinolytic function and platelet aggregation.

**Insulin Resistance Syndrome:**

Reaven has hypothesized that resistance of insulin stimulated glucose uptake and compensatory hyperinsulinemia are the common metabolic bases for a cluster of coronary risk factors, particularly hypertension, diabetes, hypertriglyceridemia, low HDL, predominance of small dense LDL and an increase plasminogen activator inhibitor (PAI) concentration. A number of observations have supported this hypothesis. Hypertensive individual both treated and non treated, obese and nonobese, are hyperinsulinemic compared with match matched group of normotensive individuals. Although not a necessary condition for the expression of the insulin resistance syndrome, obesity, particularly when located centrally (in the abdomen), exacerbates insulin resistance, and weigh loss improves insulin sensitivity. Hyperinsulinemic may raise blood presser sodium relation. Insulin sensitivity is associated with endothelial nitric oxide production in healthy person, providing a clue as to how insulin resistance
may promote CHD directory. Further more Hyperinsulinemia has been found in a prospective study to be an independent risk factor for CHD in non-diabetic men after adjusting of body weight, blood pressure and dyslipidemia.

**Eleveated lipid level or blood cholesterol:**

In combination with different proteins, the fat from even smaller globules than the size of chylomicrons. They are called lipoproteins and according to their characteristics, they are categorized (1) Very low density Lipoproteins (VLDL); (2) Low density lipoproteins (LDL), called a beta lipoproteins (3) High density lipoproteins (HDL), called as alpha lipoproteins.

**Total & LDL Cholesterol as risk factors for atherosclerosis:**

Elevated LDL Cholesterol is considered a major cause of CHD. Numerous prospective epidemiologic studies have identified a continuous graded direct relationship between serums total cholesterol and CHD. The level of total and LDL- cholesterol interacts with other risk factors to multiply risk. Elevated LDL-cholesterol levels have been related to recurrent events and CHD death in patients with established CHD. Elevated LDL-
cholesterol levels appears to be involved with all stages of atherosogenesis: endothelial dysfunction, plaque formation and growth and plaque in instability and disruption elevated LDL levels in the plasma lead in increased retention of LDL particles in the arterial wall, their oxidation and the secretion of various inflammatory mediators and chemoattractants, one sequel of this is the disruption of endothelial cell function by the oxidized LDL, with subsequent loss of production of endothelial derived relaxing factors.

**Low HDL Cholesterol as risk factor for atherosclerosis:**

Numerous prospective epidemiologic studies have demonstrated a continuous, inverse relationship between HDL-cholesterol level and incidence of CHD. The relation has been observed in men and women including the elderly, and appears independent of total or LDL-cholesterol levels. The total cholesterol to HDL-cholesterol ratio is a better predictor of CHD than the HDL cholesterol level alone. Two important mechanisms by which HDL is thought to play a protective role against atherosclerosis are reverse cholesterol transport and inhibition of LDL oxidation.
Triglycerides & small dense LDL particles as risk factor for atherosclerosis:

Several mechanisms have been proposed to explain the triglyceride-CHD association. First, several familial syndromes associated with early CHD characterized elevated LDL cholesterol level & triglyceride levels. Second, some patients with hypertriglyceridemia have a predominance of small dense LDL are felt to be particularly atherogenic and may require interventions different from those targeting elevated LDL cholesterol (A high level of plasma apoport ion B in the presence of normal LDL Cholesterol may be presumptive evidence of this pattern.) Third fasting hypertriglyceridemia may be marker of exaggerated postprandial hyperlipidemia, which may promote the uptake of atherogenic triglyceride rich lipoprotein remnant by endothelial cells. Finally, serum triglyceride levels are strongly related to fibrinogen and factor VII in numerous epidemiological studies. Therefore a number of mechanism, direct and indirect, may link serum triglyceride and CHD.

Mental Tension:

Our heart feels the effect of our emotional states and is affected by them. When someone says: "My heart felt heavy", or "My heart felt
light" or "I missed a beat of my heart, It is not merely verbal expression, modern medical science is discovering that it actually can be so. A person's attitude towards of life and his emotions are linked with state of health of his heart. Those who are given to anxieties and are ambitions and competitive and who push forward in-spite of odds and obstructions, are more liable to have coronary heart disease and heart attacks. Emotional stress or tension is commonly associated with increased secretion of norepinephrine and epinephrine; the latter agents have been studied with regard to their effect on fat metabolism. Experimental studies on dogs indicate that epinephrine mobilises fat from its depots and cause an early, rise in fatty acids and delayed rise in cholesterol. These observations indicate that both adrenal hormones and epinephrine are concerned in fat mobilization and suggest a mechanism whereby emotional stress may rise blood fat and presumably contribute to coronary atherosclerosis.

Gender :

Cardiovascular disease is the most common cause of death in women in United States. The relation of female gender to the development and prognosis of atherosclerotic coronary heart disease is complicated. The powerful protective
effect of the premenopausal state in preventing and postponing the condition is fully appreciated; women tend to develop atherosclerotic coronary heart disease approximately ten years later than men.

Women are less vulnerable than men to sudden cardiac death and less likely to have myocardial infarct as the first manifestations of atherosclerotic CHD. Typical and atypical symptoms of angina pectoris are less likely to be associated with significant epicardial coronary atherosclerosis in women, especially in those under the age 60 to 65. Functional tests are associated with much higher false-positive rates in women than in men. Multiple studies have found the exercise-induced ST segments shift to be falsely positive in women, 40 to 60 percent of the time. The expected increase in exercise-induced ejection fraction occurs less often in normal women than in normal men. Although thallium perfusion studies are more sensitive and specific than exercise induced ST segment shifts, they are not as sensitive or predictive in women, perhaps because of attenuation artifacts related to the breast and diaphragm. Hence problems in diagnosing atherosclerotic coronary heart disease in women are substantial making it critical that the accuracy of diagnosis be a part of any report discussing the natural history of this condition in women.
Complication are fewer in women after the onset of angina but they may be more frequent after myocardial infarction. However, since the disease occurs on an average 10 year later in women because women have higher incidence of other risk factors and co morbid features- particularly hypertension, diabetes, and obesity it is difficult to assess the effect of female gender per se. acute myocardial infarction has been studied most extensively and estimates of the relative risk of women as opposed to men have varied from unity to as high as 1.5.

There are multiple reports inducting a gender bias in reference to the use of diagnostic and therapeutic procedures, but interpretation, is complicated by the possibility of over use and over treatment in low-risk-men. The point has been clearly made however, atherosclerotic coronary heart disease manifest as angina, infarct and sudden death, is as common in women after age 60 as it in men.

The dictum that women have a clear incidence of CHD then man is a function of the age group examined. CHD is much less common in premonopausal women than in age matched woman, the difference most pronounced between age 35 & 44. The purported protection of woman from CHD becomes much less evident in their postmenopusal years, whom the CHD rate for men and women begins to converge. The process of
atherosclerosis does not appear to differ between men and women and the risk factor correlated with the development of CHD appear to affect both sexes equally.

The presumption is that the differences in prevalence rates of coronary atherosclerosis between men and women are a function of the relative differences in estrogen and endrogenic hormones. At puberty, circulating level of testosterone increase in males and estrogen production increase in females. HDL level are approximately equivalent in male and females untill puberty. When they drops in the male as a result of the adrogenic effect of testosterone. The greatest effect is in the HDL2 fraction. According to the Framingham study, the total cholesterol HDL ratio estimates the net effect of the "two-way traffic" of cholesterol in and out of the tissues when this ratio exceed 7.5 in women, they have the same CHD risk as men. The Framingham data also implicate the triglyceride concentration as an independent risk factor in older women.

Determining the causes of the changes in CHD rates in postmenopausal women is difficult because of the complexity of factors. The Framingham study did not show the effect of change in life style, the implicating an alternation in reproductive physiology.
Natural menopause has not been documented to affect glucose tolerance, insulin level or blood pressure. In women who undergo natural menopause serum level of HDL gradually declines and total serum cholesterol and LDL level, gradually rise, that is the lipid profile changes in a way that would predispose to atherosclerosis. These lipid changes are favourably altered by hormone-replacement therapy (estrogen). Postmenopausal women also have been shown to have increased level of circulating small dense LDL particles which may further increase their risk for the development of the atherosclerosis. Case-control studies revealed a significant benefit as regards severity of angiographically demonstrable coronary atherosclerosis in women receiving estrogen in the postmenopausal period. This protective effect was independent of other variables. The roles that hormone-replacement therapy and gender play in the subsequent development of coronary atherosclerosis remain controversial. The bulk of evidence favours hormone replacement therapy in the form of estrogen in post menopausal women.

**Purpose of the study:**

Hypertension, and coronary heart disease is a major health problem in technological society. CHD have a two major manifestation: (1) Angina pectoris; (2) myocardial infarction. There are so many risk factors which affects CHD and hypertension its extent and severity and psychosocial factor, such as psychological stress, type A behavior, Socio Economic Status,
mental health, lifestyle and etc., one of them. There are numerous studies which shows the fact that psychosocial variables cause cardiac problem, needless say that few studies have been conducted in India in this area. So our main objective is to see whether the findings of the studies in other countries are corroborated in India also. It may be argued that if stress can cause cardiac problem in the west, it will be a cause in the same way in India too and as such there is no need to verify or confirm. However, it is a known fact that cultural, religious and racial factors do play a very important role in determining the extent and severity of the effect any psychosocial phenomena. Today the number of CHD patients are increasing and CHD problems are enhancing to epidemic proportion. It needs psychosomatic solution and by this study we will try to know how psychosocial factors in our Indian societies affects cardiovascular disorder? Main objective of the present study are:

(1) To study the relationship between psychological stress and cardiovascular disorders.
(2) To study the relationship between Type A behavior and cardiovascular disorders.
(3) To study the mental health of the persons suffering from cardiovascular disorders.
(4) To study the relationship between socioeconomic status and cardiovascular disorders.
(5) To find out relationship between life-style and cardiovascular disorders.
(6) To study to gender effect on cardiovascular disorders.