

# **A PSYCHOLOGICAL ANALYSIS OF NATURAL CURE METHODS IN HEALING HEART AILMENTS**

*by*

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**THESIS**

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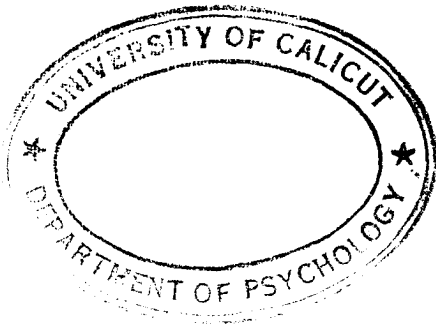
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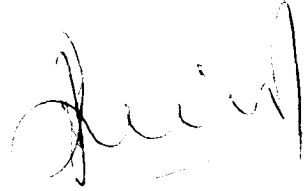
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## CERTIFICATE

This is to certify that this thesis "**A Psychological Analysis of Natural Cure Methods in Healing Heart Ailments**", is an authentic record of research carried out by **Smt. Baby Shari P.A.**, under my guidance and supervision and that no part of it has been presented before for any other degree, diploma or title.



  
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## DECLARATION

This is to certify that this thesis, "**A psychological Analysis of Natural Cure Methods in Healing Heart Ailments**", is an authentic record of research carried out by me and that no part of it has been presented before for any other degree, diploma or title.



**BABY SHARI P.A.**

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# INTRODUCTION

Baby Shari P. A. "A psychological analysis of natural cure methods in healing heart ailments" Thesis. Department of Psychology , University of Calicut, 2004

# Chapter I

## **INTRODUCTION**

- \* Introduction
- \* Need and Significance of the study
- \* Statement of the Problem
- \* Objectives of the Study
- \* General Hypotheses

People refer to heart, in their communication and emotions, many a time. So as to intensify love, truth and sincerity, we will mention heart. Importance of heart will be considered even unknowingly.

Heart is one of the most important organs of our body, which will function from the time we were in the womb, till death, 60-80 times per minute, so as to supply nutrients to different parts of the body. But cardiovascular disorders are number one psychosomatic killer in the world, accounting for more than 50% of all deaths. It was not a major cause of illness or death until the 20<sup>th</sup> century, because, before that, most people died of infectious diseases. Around the turn of the century, however, coronary heart disease (CHD) began to increase. It is estimated that only in United States, a million new cases are identified annually. Most deaths due to CHD are premature deaths that occur well before age 75. (American Heart Association, 1990). In addition to the high death rate associated with it, CHD is also a major chronic disease. Millions of people live with its symptoms (Triandis & Dragenns, 1980). Even in India, one in five deaths are attributed to this disease process. Researchers predict that by the time of AD 2010, India will be in the first place of having maximum number of cardiac patients.

Coronary Heart Disease is a condition, which develops when the coronary arteries supplying blood to cardiac or myocardial tissue become narrowed with fatty plaque deposits, a process called atherosclerosis. Myocardial Ischemia, an inadequate supply of blood to the cardiac tissue results from this coronary artery narrowing and many times is accompanied by chest pain, called angina pectoris. Myocardial Infarction (MI), death of cardiac tissue commonly called heart attack, occurs when the supply of blood flow is stopped due to a complete blockage of the artery from unstable plaque or ischemia

that is severe or prolonged. With ischemia and / or infarction, the electrical system of heart is predisposed to disturbances that can develop into irregular cardiac rhythms, called arrhythmias. Many of these arrhythmias are life threatening and can cause sudden cardiac death.

Coronary Heart Disease (CHD), the leading cause of morbidity and mortality, is thought as a disorder that is a result of individual's life style because many physiological, environmental and behavioral variables interact in the development of this disorder and many of the causal agents for CHD can modify, relate to habits of living and are under the control of individual. (Baum *et al.* 1997). In 1628, William Harvey described the heart and noted it was affected by emotions. Nearly 200 years later William Osler, the father of internal medicine observed that heart attack patient was frequently an ambitious man going full speed through life. In the 1950's, cardiologists Friedman and Rosenman researched the connection between heart and the type A personality, i.e. one who is prone to do two things at the same time, anxious, impatient and bubbling hostility. So there has long been awareness that Psychology and emotions are intimately related to diseases of heart. Spanning the last half century researchers have linked the remarkable contract in clinical heart rate and mortality to the level of serum cholesterol in these population and in turn, to life styles, in particular, dietary habits (Stamler, 1995). Researchers in this field identified many risk factors. A sedentary life style and emotional stress have also been surveyed repeatedly and offer interesting correlations, which may help us to understand the psychological factors influencing the response of the arterial walls to injury (Kuller, 1976). This is a serious topic, which begins in the mind? To have healthy hearts,

people have to change their diet and their cynical, mistrusting thoughts and hostile emotions.

There is a genetic predisposition to many psychosomatic diseases and in some people these diseases are largely physiological in origin. (Weiner and Fawzy 1989). Individual characteristics like high serum cholesterol, low density lipoproteins, abnormal glucose tolerance are directly related to risk where as high density lipoproteins has an indirect relationship. Broadening the search for contributing factors for the pathogenesis of CAD had revealed many other social and psychological factors (Jenkins, *et al.*, 1971).

Psychosomatic diseases are physical ailments with a genuine organic basis that are caused in part by psychological factors, especially emotional distress (Mazur & Nagueh, 2001). Psychosomatic disorders do not necessarily have a strong psychological component in every affected individual, but many have (Mc Croskery, *et al.*, 1991). Prior to the 1970s it was thought that stress contributed to only a few physical diseases. Later studies say that many diseases like heart disease, stroke, cancer, tuberculosis, arthritis, diabetes, leukemia, various types of infection disease, and the common cold are due to stress (Elliott 1989). The leading cause of death, heart disease is one of the major areas of interest for research nowadays. Among the heart related deaths, 90% accounts by Coronary Heart Disease (CHD) and arteriosclerosis, a condition characterized by a gradual narrowing of the coronary arteries. A build up of fatty deposits and other debris on the inner walls of the arteries is the usual use of this narrowing. Atherosclerosis slowly progress to a period of years. However when a narrowed artery is blocked completely (by a blood clot, for instance) the abrupt interruption of blood flow can produce heart attack.

Clinical impression about CAD says that its occurrence varied greatly according to such demographical factors as age, race and sex (Miller *et al.* 2001). Personal attributes detectable by simple medical examination – high serum cholesterol, high blood pressure, hyperglycemia and obesity were found to increase the frequency of the disease. Personal habits, which the patient could easily recognize himself cigarette smoking, lack of exercise, and nutritional habits like dietary cholesterol saturated fat were also investigated (Carmody *et al.*, 1986). Recently, more specific environmental hazards like carbon disulphide, oral contraceptives, menopause, gout and hardness drinking water have been associated with increased occurrence of CAD. Underlying these factors, familial and genetic defects are believed to play, an inceptive role, in concert with their complex interrelationships with social and psychological factors (American heart association 1988). Certain chronic aspects of social environment, including violation law social support and lack of economic and social resources, can increase an individual's rate of developing CAD. (Shumaker *et al.* 1994).

The limitations in current knowledge of the etiology of coronary disease argue for “broadening the search for contributing causes of pathogenesis”. (Jenkins, 1971). There is, in fact, a sizeable body of empirical, research, primarily epidemiological and clinical, designed to elucidate social and psychological variables that place individuals at higher risk of clinical CHD. Several reviews of this literature (Keith, 1966; Mord Koff & Parsons, 1968) have concluded that there is little clear cut evidence implicating psychological factors in coronary disease (Kop, 1999; Schanidt, *et al.*, 1995). Other papers (Smith *et al.*, 1986; Sunildhath, *et al.*, 1995) suggest that the evidence for behavioural variables (both psychological and social) is stronger than the support for the role of diet in coronary risk. A

monograph published by the Milbank Memorial Fund contains an article (Smith, 1992; Smith, *et al.*, 1988, 1991), which provided the definitive summary of the status of social and psychological risk factors, until the recent appearance of two comprehensive review papers published in the *New England Journal of Medicine* (Jenkins, *et al.*, 1971, 1976). They cover 162 research articles, published between 1965 and 1969, since 1970 concerned with psychological variables associated with risk of coronary disease.

In addition to the environmental and social variables, several specific individual behavioral traits have been studied as possible CHD risk factors. These include hostility, type- A behavior and related traits. As cardiovascular health is a primary component in understanding disease risk, life expectancy and quality of life; it has been noted that the expression of hostility, a component of type A behavior, can be directly related to one's cardiovascular risk.

Research has shown that people who experience high levels of stress tend to perform behaviours that increase their chances of becoming ill or injured (Wiebe and McCallum, 1986). Cardiovascular reactivity includes any physiological change that occurs in heart, blood vessels and blood in response to stress. A strong association exists between stress and high cardiovascular reactivity and development of CHD and hypertension (Manuck, 1994; Sherwood & Turner, 1995). For example, people with high job stress are associated with high blood pressure and abnormally enlarged hearts (Schnall *et al.*, 1990) and people's laboratory reactivity to stress in early adulthood is associated with their later development of high blood pressure (Menkes *et al.*, 1989).

Studies have also revealed that stress produces other cardiovascular changes that are related to the development of CHD.

For instance, the bloods of people who are under stress contain high concentration of activated platelets (Malkoff, *et al.*, 1993; Patterson *et al.*, 1994) and unfavorable levels of lipids, such as cholesterol (Patterson *et al.*, 1995; Vitaliano *et al.*, 1995). These changes in blood composition tend to promote atherosclerosis - the growth of plaques (fatty patches) on artery walls. As they develop, arteries will be narrowed and hardened, thereby increase blood pressure and likelihood of a heart attack or stroke. Sudden death usually results from cardiac failure of some sort, frequently involves two factors: a preexisting cardiovascular disorder and severe physical or psychological stressor (Allan and Scheidt, 1990; Kawachi *et al.*, 1994; Mittleman *et al.*, 1995). Type A individuals seem to be at high risk of such sudden death (Perini *et al.*, 1993).

In 1960s and 1970s, a pair of cardiologists Meyer Friedman and Ray Rosenman (1974) were investigating the causes of Coronary Artery Disease. Originally, they were interested in the visual factors thought to produce a high risk of heart attack, like smoking, obesity, physical inactivity and so forth. But many people who were having high risk factors avoided the ravages of heart disease. At the same time, other people who seemed to be in much better shape in regard to these factors experienced the misfortune of heart attack. At last specifically they found a connection between coronary risk and syndrome they called the Type A personality.

Progress toward an integrated description of the coronary prone behavior pattern comes from the laboratories of Friedman and Rosenman (Eg. Friedman, 1993; Rosenman, 1993; Friedman and Rosenman 1974). The pattern is described by these investigators as a 'characteristic action-emotion complex' which is exhibited by those individuals who are engaged in relatively chronic struggle to obtain an unlimited number of poorly defined things from their

environment in the shortest period of time and if necessary, against the opposing effects of other things or persons in this same environment (Friedman, 1969). Individuals who manifest this behavior pattern of a greater degree are called Type A, where as those who tend to show the opposite, pattern of relaxation, serenity and lack of time urgency are designated Type Bs.

Based on the preliminary data Friedman and his associates originally estimated that Type As are six times more prone to heart attack than type B's come other studies give contradictory evidences like, Ragland & Brand (1988), Shekelle *et al.*, (1985) etc. Some researchers believe that, it's due to methodological limitations where as some others say it is only for a portion of the population (Hollis, *et al.*, 1990).

There are several additional points that need to be made with regard to the definition of pattern A. First, no one Type A individual manifests all of the characteristics constituting the pattern, and even a Type B individual will show some A like features. In clinical practice, the designative of a person as Type A or Type B depends upon a summation of the number of Pattern A characteristics and their intensity (Jenkins, 1975). Descriptions of Type A and B individuals represent extremes of a bipolar continuum (Rosenman & Friedman, 1964). Which aspect of type A behavior is most strongly related to increased coronary risk? This question is of current interest of research on Type A syndrome (Weiten 1998; Davies, 1996). Based on the recent studies, many researchers believe that hostility may be more important for coronary risk than other elements of the Type A personality (Adams 1994, Burg 1995, Miller *et al.* 1996).

Coronary prone personality type is characterized by hostility, an overly competitive drive, impatience and vigorous speech. Western collaborative group study (WCGS) had found that type A behavior was associated with a two fold increased risk of developing CAD and a five fold increased risk of recurrent MI (Rosenman *et al.*, 1995). While some experts might debate hostility's ranking, as a risk factor few would argue against the evidence that suggests hostile people are more prone to heart disease.

The concept of Type A behavior is fading away, free floating hostility has emerged in the last decade as the virulent core of the coronary prone personality. Angiographic studies have found significant correlation between hostility and coronary atherosclerosis. In reanalysis of the WCGS data, hostility was the strongest component of Type A behaviour related to subsequent coronary events. In another large study of 5115 young adults, hostility scale was inversely related to the level of education and social support and directly related to adverse life events. Cynicism, Pessimism and Personal alienation are primary components of hostility. In clinical practice hostility may be easily identified by the following tell tale sign and symptoms like frequent loss of temper, while driving, or at a restaurant, bank etc., the use of obscenity, especially prolific use of profanity, intramarital tension or competition, irritation on encountering trivial errors of omission or unomission of others, general mistrust and cynical distrust of others, angry generalizations (e.g., race, women, doctors, lawyers etc.), exhibition of disproportionate anger at past events, clenched fist during casual conversation and frequent teeth grinding, hostile faces, hostile laugh and hostile voice (Allan, 1992; Friedman, 1993).

Hostility of type A's may provoke more arguments and conflicts with others. Subjects, high in hostility, reported more hassles, more

negative life events, more marital conflicts and more work related stress than subjects who were lower in hostility (Smith and colleagues, 1988). Because of their cynicism, Type A's have a tendency to push them to work hard; they tend to exhibit health habits that may contribute to the development of cardio vascular disease. (Houston & Vavak 1991; Leiker & Hailey, 1988). In comparison to others, they drink more alcohol, get less exercise, and ignore symptoms of fatigues more often.

According to Adams (1994), Burg (1995) Miller *et al* (1996) and Enas (1996) hostility may be the more important coronary risk factor than any other elements of the Type A personality. In particular investigators have been impressed by the apparent relationship between cynical hostility and Coronary Artery Disease, hypertension and early mortality. People high in cynical hostility are moody, suspicious, resentful and distrusting. They are quick to anger and to criticize others. When they get upset, they tend to show relatively strong physiological reactions. In comparison to others, they exhibit elevated heart rate and blood pressure reactivity (Smith and Brown 1991) and elevated secretions of stress hormones (Pope and smith 1991). More research is needed and evidence is far from conclusive (Rosenman 1991) but cynical hostility may prove to be the most toxic elements of the Type A syndrome (Kosekuo, *et al.*, 1998).

Hostility can lead to undesirable consequences for the individual with prominent tendencies toward this negative emotional valence, specifically, hostility is an emotion in which an individual is seen as being in opposition to others, with a desire to harm or to negatively impact others, and the feeling that problems in the individual's life are due to other's interference (Saul, 1956; Smith 1994). Hostility can be operationally defined as a constellation of action and feelings directed toward others and the self. This

collection of behaviors is the basis of hostility measures such as that of Cook and Medley (1954). Researchers like Williams (1989), had pointed out that the physiological reactions of hostility like pronounced increase in blood pressure, and heart responses while becoming angry or even while thinking about it.

Williams (1989) and Williams and Williams (1993), who believe hostility is the villain, are not the only ones to treat heart disease successfully using psychology. Volumes of research over twenty years have studied the relationship between type A personality and heart disease. According to Stoney, a well known recent researcher in the field of hostility and heart disease, high hostile people have a sympathetic nervous system that is always tuned on, resulting in higher homocysteine levels, which is a blood chemical strongly associated with coronary heart disease.

Hostile people are also more likely to practice habits that increase heart disease risk like, fat diet, smoking etc. Eastenberg reported in A.D 2004, websites that aggressive responding, a particular aspects of hostility was related to ischemia even after taking in to account demographic factors such as age and sex and health factors such as cigarette, coffee and alcohol use. It is too early to say for sure why aggressive responding may be linked to heart disease, Eastenberg said. But other researchers have shown that hostile people have higher levels of cardiovascular reactivity. In other words, their cardiovascular system shows greater responses during stress. One hypothesis is that greater reactivity may facilitate and accelerate the atherosclerosis process in the coronary arteries.

Medical and surgical treatment for CHD has made lots of studies in the past 3-4 decades. Among the major develops include a variety of effective cardiac medications, and procedures.

Nevertheless evidence suggests that behavioral interventions can further improve medical and psychological outcomes in CAD. (Nezu *et al*, 2003).

Several types of interventions can enhance people's recovery from and long-term adaptation to having heart disease. Self-help and support groups, interventions using technological devices and psychosocial interventions like giving information, counseling and helping for stress management etc. are the areas of interests researchers in intervention.

Life style modification consists several major components like, a 10 % fat vegetarian diet, stress management training, group support including yoga, meditation etc. in group settings and individual practices like cessation of addictions, smoking and program of moderate levels of aerobic exercise. Such life style modification intervention was conducted by Ornish and his colleagues in 1991, for a period of one year among moderate to severe CHD patients, showed that after one year experimental group participants were able to make and maintain life style changes with beneficial results, including a 37 % reduction in low density lipoprotein (LDL) cholesterol levels, a 91% reduction in anginal episodes, and a slight reduction in the extend of stenosis (blockage) in coronary arteries.

Dean Ornish and his colleagues (1990) developed and treated a multi component intervention program of dietary, exercise and stress management approach for cardiac rehabilitation. After the finding they extended the study follow up, for 4 additional years, to determine whether the participants could adhere to the intensive life style changes and to assess their impact adherence might have on their disease status. They found that on average, there was more

reduction and continued improvement after 5 years than after just one year in the intervention patients. None of the life style change group was prescribed lipid-lowering medication, yet they showed better results than control groups, who were taking medications. In addition the researchers again found that there was a dose-response relationship between adherence to the life style change program and reduction in percent diameter blockage in coronary arteries. (Ornish *et al.*,1998).

Even recovery after a heart attack presents difficult physical and psychosocial challenges for patients and their families. The rehabilitation programs require individuals to adhere to regiments of exercise, diet control, medication taking and stress management. Some programs can reverse the disease process. The long-term impact of heart disease often involves emotional, vocational and marital problems that may require therapeutic interventions to enhance adaptation.

Psychosocial treatment approach mainly concentrates upon modifying hostility and implementing life style changes. Based on a limited number of studies conducted prior to 1987, Nunes *et al.* (1987) performed a meta-analysis of relevant literature and found that treatment of type A behavior pattern, using a combination treatment technique reduced coronary events by about 50 %.

Perhaps the most important area of study is 'psychologically what can be done to prevent or reduce heart disease?' The findings have not become clear-cut yet. But, several interventions have been repeatedly shown to be helpful, like relaxation training, self monitoring of Type A behavior, stress management, hostility management, cognitive restructuring, supportive counseling by nurses and counselors, reduction in risky behaviors (smoking, fat

diet, over weight), meditation, exercise and others. In fact, several researchers have concluded that psychological treatments were more effective than the usual medical and surgical interventions, including beta- adrenergic blocking medications, anticoagulants, stents etc. However, standard medical treatment has recently improved with better beta blockers, lipid lowering medicines, better stents etc, More research of the psychological treatment is needed but the promise is there.

From the risk factors so far discussed, it can be seen that the causal factors of CAD is extended in the biological, psychological and social areas of a patient so that the investigator assumes that a holistic approach, which will consider the patient, his mind and body, along with the psychological and social aspects are effective in dealing with the disorder.

CHD is a common disease in the developed countries, especially in America, Europe and Russia. Recently, higher rates of disease are also reported from Asia, including China, Japan, South East Asia and India. By A.D. 2020, one in three deaths of India will be due to heart attack. Even 13% of Keralites suffer from minor or major heart ailments, though they are far better in cleanliness, literacy and health. Urban people have higher rates of CHD than rural people. 12% of Keralites above the age of 30 years have heart attacks. There is, in fact, a sizeable body of empirical research, primarily epidemiological and clinical, designed to elucidate social and psychological variables that place individual at higher risk of clinical CHD. Much of the research on the contribution of personality traits to the development of coronary heart disease has been concerned historically with a constellation of personality traits identified as type A. They have an increased tendency to experience stress, in comparison to others. Though relation between personality

and health is best explained by these typologies, especially A type, majority of such studies are conducted in West and but the Eastern concept *trigunas*, the personality concept developed in India, are not properly studied in relation to cardiac health either in West or East. Moreover, the theoretical assumption that people who are high in activation and stability are more prone to psychosomatic disorders, especially heart disease (Mathew,1995) is not empirically attempted. There is highly evident need for research on these variables in Indian context.

The type A concept is fading away, but the most deadly component of type A namely 'hostility' is attributed extensively on the psychological causal factor of ill health, especially cardiac health. Even studies in youngsters reveal their chances of getting heart attack while they get older, because the long lasting influence of Hostility and Stress make them 5 times more likely to get heart attack than those who have low Hostility and Stress. Such kinds of studies are rare in India especially in Kerala. The said variables are rarely attempted to study alone, or in combination, among heart patients. So there is a relevance to study their effects of these variables among cardiac patients and so as to verify and analyze their control sample (normals) also have to be studied.

World Health Organization defined 'health' with three important dimensions, the physical, mental and social health. During the last decade, a fourth dimension the spiritual health is being added to the concept of total health. This multidimensional approach in health care leads to the new concept of 'holistic medicine', which should not be mistaken as multi disciplinary approach or non-pharmacological modalities of treatment. To promote and preserve health, prevent and cure illnesses and also to

have a useful and effective healthy life, holistic approach is the best and affordable modality of treatment for all nations (Warrier, 1998).

Every system of medicines encourages people to (1) live right, that is to preserve health and prevent illness (2) Eat right, i.e., to maintain healthy and good eating habits and (3) think right; i.e., to avoid undue stress and strain in life and enjoy good physical and mental health. Recent Indian healing systems especially Ayurveda gives equal importance to four dimensions of health, like physical, mental, social and spiritual.

Even with the most scientific advances and fully equipped centers more than twelve million deaths occur everyday by cardiovascular diseases alone and fifty percent of these are preventable by changing the life style and adopting holistic approach in life and follow up of cases (Warrier, 1998).

Psychological factors play a part in all physical diseases. Whenever people are ill their attitudes can influence the course of the illness. That is whether they are motivated, optimistic or gloomy. Mentally sound person has a better chance of recovering from illness. Sometimes emotional roots are attributed to all kinds of illnesses on the basis of evidence. This is particularly true for psychosomatic illness whose causes are not yet fully understood. It can be seen that the modern world realizes the relation between human body and mind and that any impairment or change in mental functions can lead to physical illness.

In recent years contact between Psychology and Health Sciences has expanded beyond mental health to a far broader area, concerned with behavioral factors affecting physical health and illness. This new field has contributed to the health care disciplines and understanding of disease. Controversially research on health

and behaviour, already has enriched the general body of psychological knowledge.

Evidences report that psychological/biological intervention strategies had mainly concentrated on mind and body, but patient is not considered in a holistic manner, by giving equal importance to their biological, psychological and social aspects. Man as a biological and social being, should be studied in those backgrounds, especially in the light of their cardiac health. Intervention studies among heart patients give importance for diet *also*.

Earlier, most of the intervention studies made by psychological experts and cardiologists among heart patients concentrate either on biological variables or symptoms reduction. But the root cause of the disorders lies with the life styles and starts in the mind, CHD patients have to change their diet, cynical hostile thoughts, decrease stress and increase their '*satvic*' personality qualities. As most of the patients expect, a pill or a diet only won't prevent heart disease.

The present study also aimed to provide an intervention, which include, diet, yoga and meditation, *panchabhutaupasana*, artistic expression as well as psychological counselling. Such kind of a study is not attempted earlier and a combined intervention of biological, psychological and social aspects could be studied through this. Only stopping the causes, which are extended in the biological, psychological and social spectrum, will lead to a healthy heart.

### **Significance of the Study**

The most recent definition of health by WHO, is that; it is a biological psychological, social and spiritual well being of a person. It accepts the biopsychosocial model of health.

The life style disorders are something very common, in the present world and they are called as psycho physiological disorders because influence of the psychological disturbances, especially stress, upon the physiological system is highlighted in them. Living or nonliving microorganisms or germs cannot be pointed out as the causal factor of that but rather the causal factors are extending in the biological, psychological and social arena of the individual. Heart disease is a major life-threatening situation of such a kind so that by considering a heart patient's scenario, the risk factors also will be extended in the bio psychosocial areas of his living. Attempts to explore these areas, in a detailed way were made different, theorists and researchers, as reviewed by the investigator.

Personality of heart patients were usually studied, as type of personality whereas present study attempts to explore the Eastern concepts of personality. Stress is accused of as one of the major culprits in creating heart disease. Unlike the stress related studies, here it is attempted to study in three different levels or dimensions, namely familial, social and environmental stress. Moreover according to recent researchers, the component of personality type, which will directly lead a person to heart disease, is his hostility and that variable is not widely studied in Indian set up, especially among heart patients and a scientific tool is not properly available to administer among patients.

As mentioned above the risk factors of heart disease, especially Coronary Heart Disease, is extending in the biopsychosocial arena of a subject, a treatment provided to these subjects also should be extended in these dimensions. Many of the intervention studies are reported in this field, but the investigator propose a new treatment package, under the background of natural cure methods.

Natural cure treatment techniques are based on the principles that, an illness or disorder cannot be cured by symptoms suppression, but rather by self-healing, through stopping the cause. Suitable environment has to be created to speed up this healing process. As the disorders have got risk as well as causal factors of three different sorts, (biological, psychological and social) the intervention of present study also planned like that, and intervention package is formed.

The heart patients' main treatment is taking medicines to dilute fat and avoiding further fat intake. But it is not fully cured simply by providing a low fat diet. Health has to be experienced, in the protoplasm of each and every cell, by correcting its combinations and unnecessary fat and other toxins should be eliminated from the body. Dietary modifications have recently become a way for individuals to take an active role in their well-being and a way to prevent the onset of illness or reduce the negative consequences of disease. Medical practitioners commonly recommend dietary modifications and life style changes as a complement to traditional treatment rather than a sole alternative cure.

As suggested by natural cure, some experts like Mathew, (1995), Baby (2004), Ramana Maharshi, our old texts and experts in nature cure argue a perfect raw diet can be suggested to patients. This includes fresh ripened fruits, fresh vegetables, nuts etc. Saturated fat is avoided, as well as other cooked food.

Mind and body are so closely connected. As the mental tension is experienced in body responses, body movements will be vibrated in physical and mental health. For getting a similar benefit yogasanas are taught to the patients. Postures; breathing exercises, relaxation and meditation etc. provided along with yogasanas

increase microcirculation and positive neuro endocrinal changes in the practitioners.

Stress can be due to some past events or present conditions. This can be realised to the patients and a better cognitive restructuring will help them to handle problems easily. For this psychological counselling will be effective. Family or partners support can be sought for this kind of intervention, which will be beneficial to the cardiac health.

During aesthetic expression, a person will become relaxed and that gives a kind of good self image for the person. Moreover, it gives a kind of social image, which will help to eliminate feeling of helplessness and increase social support. All these will create positive vibrations in the heart functioning.

*Panchabuta upasana* is another strategy of the intervention provided in the natural cure. Everything in the world, including human body is constituted of '*panchabhutas*', five elements and our body should be in constant interaction with them. We need sunlight and we have to touch on the earth. Some empty space should be there in the body, for the smooth functioning of systems. Being in the mutual interaction with the *panchabhutas*, will create an open-minded attitude, toward the universe, which will be very helpful to decrease the deadly emotion, hostility.

One of the major psychological factors, hostility is considered to be the major psychological causal factor that leads to heart disease. It is considered as one of the major risk factors of Coronary Heart Disease.

Investigator proposes that if the major psychological factor, hostility is cured or decreased, through an intervention, the

recurrence of heart attacks, can be decreased and symptoms can be cured.

The effect of the intervention has to be studied properly through a long-term study, in a large population. Many researchers proved temporary efficacy of many of these intervention strategies. More over stress will create physiological consequences in the body, but that can be in different stages. If the psychosomatic symptoms are in such a stage, that the lesions in the organs are so severe and irreversible, it affects the efficacy of the intervention. These facts indicate the recommendations and limitations of the present intervention package.

### **Statement of the Problem**

The present study is entitled as "A Psychological Analysis of Natural Cure Methods in Healing Heart Ailments".

### **Objectives of the Study**

In view of the so far discussed observations, the present study is planning to explore the Hostility, Stress experiences, Personality dimensions of CHD patients. More over the present study aimed to develop an intervention programme in accordance with the holistic ideology of Natural Cure, by giving importance to change the life style of patients and to modify the unhealthy psychological variables as well as certain physiological correlates. Hence, the primary objectives of the present investigation are:

1. To identify the dimensions of Hostility, Stress and Personality of CHD patients.
2. To study the nature and extent of relationship among the dimensions of Hostility, Stress, Personality and Physiological correlates.

3. To find out whether CHD patients and normals differ in terms of any of the variables.
4. To explore the efficacy of natural cure intervention package in eliminating the biological as well as psychological variables like personality, stress dimensions and hostility.

### **Hypotheses**

The following general hypotheses have been formulated in accordance with the above objectives:

1. There will be significant relation among the dimension of Personality, Stress and Hostility.
2. There will be significant difference between normals and CHD patients in the different variables of Personality, Stress and Hostility.
3. There will be significant difference between the classificatory factors (personal and demographic factors) in the variables Stress and Hostility.
4. There will not be significant interaction between the classificatory factors of personality, in the variable stress.
5. There will be significant interaction between the classificatory factors of personality in the variables hostility.
6. There will be significant difference between the classificatory factors of Hostility (high, medium and low) in the variables of stress.
7. Hostility can be predicted by means of selected predictor variables Personality and Stress.
8. There will be significant difference in the variables of Personality, Stress, Hostility and certain Physiological

correlates, between before and after intervention assessments (in the experimental group and control group).

9. There will be significant difference between the experimental group and control group in the variables of Personality, Stress and Hostility and certain Physiological correlates after intervention.

# REVIEW OF LITERATURE

Baby Shari P. A. "A psychological analysis of natural cure methods in healing heart ailments" Thesis. Department of Psychology , University of Calicut, 2004

## *Chapter II*

### **REVIEW OF LITERATURE**

- \* *Related Theoretical Literature*
- \* *Related Studies*

Review of literature is usually connected with the main subject matter of the research study; which helps to indicate the potential or actual significance of the study within a national or international framework.

The literature in a research study accomplishes several purposes:

- a) It shares with the reader the results of other studies that are closely related to the study being reported
- b) It relates a study to the larger, ongoing dialogue in the literature about a topic, filling in gaps and extending prior studies.
- c) It provides a framework for establishing the importance of the study, as well as a benchmark for comparing the result of a study with other findings. All or some of the reasons may be the foundation for writing the scholarly literature into a study.

In theoretically oriented qualitative studies, the theories from the literature is introduced by the researcher, whereas in planning a quantitative study, the literature often is used to introduce a problem in the introduction.

In the present study collected review is arranged under two headings, namely Related Theoretical Literature and Related Studies.

## **\* RELATED THEORETICAL LITERATURE**

- *Healthy Life Style Behaviours*
- *Concept and Cause of Disease*
- *Mechanisms Linking Behaviours to Physical Disease*
- *Psychosomatic Concept*
- *Psychosomatic Models*
- *Personality*
  - *Western and Eastern Perspectives*
- *Stress*
  - *Sources, Reactions and Coping*
- *Hostility - Nature and Assessment*
  - *Type A Personality and Hostility*
  - *Predisposition to Heart Disease*
- *Health and Healing*
  - *Various Approaches*

The concern for health development and primary health care in India date to the Vedic period. In the Indus Valley Civilization as far back as 3000 B.C. one finds evidences of well developed environmental sanitation programmes such as under ground drains, public bath in the cities etc. 'Arogya' or health was given high priority in daily life and this concept of health included physical, mental, social and spiritual well being. This cherished value regarding health is also enshrined in an ancient Sanskrit verse, 'Sarve Santu Niramyaha', which means 'let all be free from disease let all be healthy which often used to express good wishes (Warrier, 1998).

The Alma Ata Declaration of 1978 to which India was significantly aimed at 'Health for all by 2000 AD. It layed great emphasis on achieving the aim by primary health care, that is the primary prevention of disease. Our traditional system of Ayurveda primarily believed in prevention as the basis of health care. *Aachar* (character), *Vichar* (thoughts), *Vyavahar* (inter personal dealings) and *ahar* (diet) are the basic pillars for maintaining a healthy body and healthy heart.

The biopsychosocial model of health has got several implications in clinical practices. As the interacting role of the biological, psychological and social factors in assessing an individual's health or illness is concerned, an interdisciplinary team approach may be the best way to make a diagnosis. (Schwartz, 1982). The model maintains recommendations for treatments, and a therapy which examines all three sets of factors so that a team approach may be appropriate It points out the importance of understanding the social psychological factors that contribute to all an illness in order to treat appropriately. The health habits of healthy individual also should be evaluated in their psycho social

contexts. These contexts may maintain a poor health habit and with appropriate modification, that can facilitate the development of healthy ones. According to the model heredity, environment, health care and life style are the 4 determinants of health.

There are a number of health problems that may have a genetic link. There is clear evidence that environmental factors contribute heavily to morbidity, mortality and overall health, controlling environment has done more to promote good health and to reduce life threatening diseases than any other single factor. Health care professionals will always be needed, but their importance in the overall maintenance of health will diminish as the new prosumers take more active and responsible roles in the maintenance of their health. . A healthy life-style can't be purchased or bartered , it must be lived by each and every individual. A healthy life style is the single most important determinant of health. (Surgeon General, 1999).

### **Healthy Life Style Behaviour**

Health is experienced moment by moment. It is nourishing our body with food when we feel a pang of hunger. When we are hurt, it is being able to express that hurt and to restore balance and harmony to our body. When we are angry, anxious, fearful or in love, it is having the resources to meet those needs moment by moment, as they arise. Health consist of maintaining a balance, or what the physiologists call, homeostasis Health, then, is a matter of behaviour, it is satisfying needs in a balanced, fulfilling way instead of temporarily palliating them or suppressing their momentary symptoms, when a need shouts, 'Deal with me' you can either shut off the alarm (treat the symptom) or satisfy the need in a nourishing way (treat the problem) . In order to change an unhealthy

life pattern, we must be able to recognize the body imbalances and create a supportive environment that promotes balance. We have to be motivated by internal support systems instead of external factors. The most important aspect of good health is knowing that one is the creator of his own reality, environment and life style. Consciously or unconsciously one is creating and is responsible for interactions and interdependencies, with his environments and others who share his world.

### **Concept and Cause of Disease**

Health is a word that can not be easily defined. For a better definition, it often holds to mean the absence of disease. The more conditions that considered to diseases the less likely is anyone to have good health. To further complicate matters, there is the problem of our own perception of disease and how this affects whether or not a diagnosis is made. If we feel well, that is, if one do not perceive the existence of disease and consequently do not seek the attention of a physician, we are for practical purposes, 'healthy', despite the fact that some undiagnosed disease state may exist.

During the Middle Ages, in particular, advances in knowledge on human anatomy and physiology were frustrated because of religious opposition to autopsies as well as to the scientific methods necessary for clinical investigations in man. Even in modern world the belief that diseases can be cured by religious conviction persists among various people around the world.

Medical men and bacteriologists are declaring that germs can not secure a foothold in a healthy body, but that a 'suitable soil' is necessary. The person with a high degree of vitality is immune to germs. The natural immunity to disease must be broken down for germs to gain a foothold, then the germs are not the primary causes.

The prevailing medical systems have entirely different viewpoints regarding the causation of illness. Allopathy says nothing about the man except in connection with his tissues; they characterize the changes in the tissues as the disease and all there is of the disease, its beginning and its end. According to Ayurveda, disease is technically contradiction of incompatible elements. The biological functions taking place in the body can be divided into three and when these functions fail to function properly there occurs the contradiction of incompatible elements. This is disease or illness. (Chikistsavijnana Kosam 1991). Homeopathy sees that symptoms are positive signs of the body, reacting against the disease, as it attempts to overcome it and seeks to stimulate rather than suppress this reaction. Apart from the three major medical systems, many other branches have the exact idea regarding the cause of diseases. The concept of illness in Nature Cure is entirely different. According to this branch of knowledge, disease is caused by violation of nature laws, by deviating from the natural habitat of the organisms. The worst form of this violation has taken place in the food habits of modern man. Any foreign substance which is not required for the functioning of the body, or which can not be absorbed by the body; is a toxin. Accumulation of toxins in the body leads to disease. Disease is the body's attempt to eliminate toxins and the eliminatory processes are called disease symptoms (Taylor, 1990).

Recent Indian healing systems, as well as the W.H.O. gives equal importance to four dimensions of health, like physical, mental, social and spiritual.

**Physical health:-** Healthy life demands fresh food, pure air, water and non-violent behaviour. Eating seasonal vegetables, fresh fruits and maintaining a daily balanced diet have been mentioned in every system of medicine. According to Chinese concept, '*prana*' or 'vital

energy' is more in fresh vegetables and fruits and less in stored or frozen food.

**Mental health** :- 'A glad heart makes a good healthy man', pointed out by the book of proverbs. Healthy mind in healthy body is to be aimed by everybody. A relaxed and well balanced mind is more productive than an agitated and tensed mind. Methods of relaxation like yoga prayer, meditation and music provides relaxation by relieving stress.

**Social Health** :- Absence of code of conduct, deterioration in basic human values, greed to mass, wealth violence etc., increase stress and strain in life. Vagbhata had emphasized the importance of helping fellow beings according to one's capacity. *Astangahridaya* by Vagbhata explains the need to keep the company of good persons. To have the best health and peace of mind in life, Vagbhata advices, to have pleasant attitudes and courteous behaviour and try to build good rapport with every body.

**Spiritual Health**:- The concept of spiritual health is more important in procuring good mental healthy attitudes in life. Bodily actions like violence, killing, stealing, bad works like scolding, speaking ill of others, mental attitude to insult others, desire for the wealth of others, lack of faith in good etc are acts one should avoid, for peace of mind and good spiritual and mental health .

### **Mechanisms Linking Behaviours to Physical Diseases:-**

The diverse effects of behaviour or aspects of health and illness, ranging from etiology and prevention to rehabilitation may be considered in this frame.

- 1. Direct psycho physiological effect:-** This involves alteration in tissue function via physiological responses to psychosocial stimuli, which encompasses bodily changes.
- 2. Health impairing habits and behaviour:** Habits and life styles that are damaging to health may lead to physical illness. Poor diet, lack of exercise, alcohol consumption, poor hygienic practices etc are linked to disease outcome

### **Psychosomatic concept**

The word psychosomatic mean mind-body. It described the effect of mind on body and body on mind (Otto, Julian, & Tether, 1976).

The term psycho somatic (Greek words, Psyche & Soma) was coined by Heinroth in 1818, to emphasize, that both mind and body are important in medicine, but was popularised after the first world war. After second world war many researches had progressed in Britain in the area of psychosomatic illness. (Laden, 1983).

Physicians have been concerned with the relevance of the body-mind relationship to clinical practice and have been aware of the far reaching effects of disturbances of one on the other The term psychosomatic refers to the influence of psychological process on the biological process. Alexander and Flagg (1965) states that many chronic disturbance are caused by the permanent emotional stress. White and Watt (1973) referred psychosomatic disorders as disturbances in which emotional stress leads to chronic dysfunction in some organ systems, which are under the control of the autonomic nervous system.

## **Psychosomatic Models**

Different theories perceive psychosomatic illness from different angles. In these theories some kind of cognitive affective factors or central component intervenes between stimulus and response and influence the pattern of reaction.

According to personality type model specific psychosomatic illness as the over activity of the nervous and hormonal pathways connected with reflex patterns of fight or flight, due to the undischarged or excess psychic energy. In the view of the Regression Model, transactional system grows more and more complex with age and homeostatic mechanisms become rigid so it is more easily disturbed and when it happens the organism regresses to an earlier psychosomatic unity in which the somatic participation is primary (Grinker, 1953). Wolf's Response consistency Model, hypothesized that genetically an individual had a typical, consistent pattern of somatic response and the emotional states precipitated somatic changes. The Rochester Model concentrates on the failure of defense as the cause for the development of psychosomatic disease and paves the attention to biological, psychological, social and cultural parameters (Engel, 1962). Cortico Visceral Model demonstrates the relevance of temporal types, nervous break down (due to over strain) and stresses the role of peripheral factors. Weizacker's Anthropological Medicine Model replaced the dualism of psyche and soma by the polar unity of subject and object. Existential approach is concerned with the understanding of the patient's life history as a modification of his being in the world. Haliday's Socio Cultural Model implied that illness was not a fault but a reaction or a mode of behaviour, in which value system, economic system, mother-child relationship etc has vital importance (Mead, 1947). Emotional Reaction Pattern Model holds that very similar patterns of

stimulation can produce different physiological reaction in different people, and different emotional stimuli can produce similar Physiological reaction in the same person (Laden, 1983).

### **PERSONALITY**

Personality in a general sense may refer to the role that one plays in life's drama. And so, Shakespeare, has said that all this world's stage and all the men and women are players where in were play. A similar definition was given by Jung. He defines personality as the mask adopted by the person in response to social conventions, traditions, and to his/her own winner archetypal needs (Hall & Lindzey, 1978).

An individual has personality to the extent that he behaves in likeable ways, in charming, generous and popular, gets along well with and generally manifests socially desirable qualities (Feist, 1985)

There are a variety of definitions for personality but common to all of them are concepts of uniqueness and characteristic behaviour. Therefore simply we can say, personality is what characterize individual. It includes the unique physiological qualities that influence a variety of characteristic behaviour patterns, both overt and covert, across different situations and over time (Zimbardo, 1985).

Byrne defines personality as the culmination of all the relatively enduring dimensions of the individual differences on which he can be measured (Byrne, 1987).

Carl Rogers views personality in terms of self, an organized and permanent. A quick overview of the meaning personality of in

Psychology can be gained by briefly considering the views by a few recognized theories.

### **Theories of Personality**

According to Lamberth, Rappaport and Rappaport, personality theories can be classified into four categories.

#### **Psychoanalytic theories**

Theories which have psychoanalytic tradition are the famous among human personality theories. According to Freud, personality represent the compromise between the needs of the individual and the demands of the society. He divided personality into structures, namely id, ego and supergo which represents the dynamic interaction of specific process. Though seems similar to Freud in some respects, Jung's personality theory differs in three basic ways: it is concerned with man's racial history, with the influence of future and with the concept of self. Contemporary to Freud and Jung, Adler's major concepts are compensation, schemes of orientation, social interests, sibling rivalry and self esteem. Eric Fromm's theory of personality provides a bridge between psychoanalysis, existentialism and the social sciences.

#### **Trait theory**

In trait theory people differ from one another in the amounts of various characteristics they have in their personality. (Zimbardo, 1995)

Traits are relatively enduring personality characteristics that have a fairly generalized effect on behaviour in diverse settings. According to Allport there were pervasive disposition in individuals that determine most aspect of individual behaviour (Cardinal traits)

and less pervasive but still quite generalized traits (central traits). Cattell differentiated between source traits and surface traits. Source traits are underlying sources of observed behaviour, and surface traits are clusters of trait elements that appear to hang together.

### **Social learning theories**

Social learning theories describe personality as consisting of all the learned tendencies that a person has acquired over the experiences of his/her life. These are interested in altering behaviour patterns, strengthening some behaviours and weakening others. Classical and instrumental conditioning are the two basic procedures social learning therapists use in the study of learning. Dollard and Miller were two personality theorists who set out to continue Freudian psychoanalytic theory and Mullan theory, who emphasized the role of drive, cue response and reinforcement in learning and the role of conflict in maladaptive behaviour. Wolpe, incorporated principles of classical conditioning into a theory of reciprocal inhibition and developed a technique of systematic desensitization. Bandura, working with children, emphasized the role of models and imitation in learning. Learning theorists have been criticised for disregarding important characteristics of human organism, for over emphasizing on environmental determinants and for being based on research.

### **Phenomenological/Existential theories**

These theories explain personality in terms of the importance of personal consciousness, the freedom to think, feel and act and the necessity of values for a meaningful life. Existentialism and Phenomenology are related, but can be distinguished because each approaches the study of people differently. Kelly's phenomenological

theory deals with people's ability to assess and adjust to experience. Rogers believed that people organize their experiences around a subtle feature—their self concept. Maslow suggests that personality is an individual's unique expression of his/her needs. The personality strives for health and maturity through attention to increasingly abstract needs and the development of values (Cattell and Dreger, 1977).

### **Eastern Perspectives on personality**

Attempts to forge a systematic understanding of human behaviour was not originated with contemporary Western Psychology. In comparison to Eastern religion, which is the richest source of such formulated Psychologies, the formal Psychology is merely a recent revision. Quite separate from the vagaries of cosmology and the dogma of beliefs, most major Asian religions have at their core a Psychology a little known to the masses of adherents to the faith but quite familiar to the appropriate 'professional' be they yogis, monks or priests.

#### Indian views

The goal of Indian Psychology was to alter a person's consciousness, so as to transcend the limits imposed by the habits that form the person's personality. Each personality type needs to overcome different obstacles to attain the liberation from the limits.

Briger arrives at '*ananda*', bliss as the ultimate essence. The Gita accepts the Upanishadic view that the self of the individuals is identical with the absolute, the Brahmin. It also agrees with the Buddhist view that the ego, the empirical self is impermanent (Mishra, 1994). Analyzing the total personality of man, Buddha arrived at the skandas or five constituents, viz, *rupa* (corporeality), *vedana*,

(feeling) *samjna* (perception), *samskara* (disposition) and *vijnana* (consciousness).

According to *Nyaya*, *vaisesika* view personality consists of the self, the *atman*, the *manas*, mind and the body. Gautama states that the self is a unique substance to which all cognition, feelings and actions belong as its qualities; Kanada, the author of *vaisesika* sutras also agrees that it is eternal and that is not an object of perception.

The *mimamsa* thinkers are also realists. They accept the existence of the self and that it is entirely distinct from the body. The self as experiences of pleasure and pain. Knowledge is the property of self. The self is also the experience of all the fruits of action.

### **The triguna typology- An ancient Indian personality Typology**

Sinha states that the mind-body complex is composed of trigunas, *satva*, *rajas* and *tamas*. But the self is considered devoid of the three gunas. Trigunas' as human temperament are first mentioned in the Atharva veda. In this man's temperament consists of elements *tamas* which means harmful and destructive in nature, and *rajas* which means selfish, sensuous and showy in nature, *satva* which means selfless and serene, benevolent and benign nature.

According to samkhya philosophy nature is composed of three forces. *Satva*, *Rajas* and *tamas*. The word '*guna*' in sanskrit usually means a 'cord', 'string' or thread. Moreover, in much of Indian philosophical discussion the term is used to refer to the notion of a quality or attribute of a substance or thing (Larson & Battacharya, 1987). The samkhya philosophy emphasize that *prakriti* has no existence independent of *Gunas*.

The quality of *satva*, the ideal state of being, perfection crystal purity and utter quietude, predominates in the gods and in men bent on goodness and spiritual pursuits. This is the *guna* that facilitates enlightenment and the first aim of yoga is to increase *satva* and thus gradually push out man's nature of *rajas* and *tamas*. *Satva* has the function of manifestations and *satva* manifest objects into consciousness (Reyna, 1971). *Rajas*, means 'impurity' or 'dust' obscures the view not only of the universe but of oneself producing intellectual and moral darkness. *Tamas* literally, 'blindness' enters in the unconscious that predominates in the animal, vegetable and mineral world. *Tamas* has the function of restraint which serves as inertia, resistance and restraint and represents ignorance and inaction (Rajadhyaksha, 1986).

Sri Aurobindo (1970) describes these as a 'three qualitative modes of nature which are intricably intertwined in all cosmic existence – *Tamas*, the principle of inertia, is a passive and inert nescience which suffers all shocks and contracts without any effort of mastering response and by it self would lead to a disintegration of the whole action of the energy and a radical dispersion of substance. But it is driven by the kinetic power of *rajas* and even in nescience of matter of met and embraced by an innate, through imposed preserving principle of harmony and balance and knowledge, the *satva*. A general description of these tendencies in the things of universe based on the three gunas is as follows.

### **Satva**

Mascaro explains *satva* as a tendency to continue and continuance in heart when it is pure. That is, Freed from all things causes it either to arise or decline. It is a tendency to remain at

peace both with in themselves and relative to all else. It is the tendency to remain placid, calm, serene and undisturbed by any internal and external tendency.

The man dominated by *satva* guna is characterised by intelligence and clarity of vision. He is free from hurt, anger and greed. His actions in society are motivated not by personal gain at the cost of others in society but by *lokasamagraha*, the well being of all society. His speech is truthful, pleasant and beneficial and gives no difference to others. He is scheming mind, gentle, silent and full of self control. He works and fulfils his obligations with out expectations of reward. He is characterised by *sadhava*, sense of reality and by *sadubhava*, some of goodness and morality (Kuppuswamy, 1990).

According to Swami Rama, the man predominate *satva* guna remains serene and happy. The *satva* quality is full of delight, enlightening, and very helpful of maintaining mental and emotional equilibrium. When the *satva* quality is not predominant, one experiences lack of calmness, happiness and joy. The mind then remains in a state of turmoil, full of conflict and confusion.

In precise terms, *satva*, (pure-clear modality) means purity, causing brightness, and expressing normal well being, binds by pleasure, conditioning and by knowledge conditioning. The clarity and purity implied in *satva* are normal and natural qualities of the psyche, when it submits neutrally to natures' law. (Natarajaguru, 1989). *Satva* is illuminating. It ties the soul in bonds of happiness and wisdom. It gives peace and enlightenment (Rajadhyaksha, 1986).

## Rajas

*Raja guna* is the tendency in all things to stir, to move, to indicate, action, to arise and become aroused, to grow, increase and proliferate, to become aggressive and violent (Beena, 1990).

The person in whom rajas is predominant, is given attachment to the objects of desire. He is lustful and greedy. Lust for action inevitably leads to grief and pain because either his ability or the opportunity available may not help him to achieve what he desires to achieve or his vary success may lead him to further and endless exertion to get more and thus may generate intense hostility among others with whom or for which he works (Kuppuswamy, 1990)

*Rajas* creates *raga* (attraction or attachment) and *dvesha* (aversion or hatred). Criminals when interrogated confess that they know they should not have acted in the way that they did, but that they committed their offences out of habits. It is *rajas* that led them to act and to create a division with in and without.

Swami Rama pointed out that *rajas* can be directed positively and can led one to be creative and constructive. It is an active force and if properly utilized, it can do tremendous good for both the individual and mankind. The principal characteristic of this modality is *raga* (attachment of various objective value in life). In general, there is a thirst for life, to pleasurable, values of ordinary life (Natarajaguru, 1989),

Rajas is born of passion and desires. It cause attachment to work actions and their fruits (Mishra, 1994).

## **Tamas**

Tamas brings capacity and negligence of action as well as the incapacity and negligence of error, inattention and misunderstanding, indolence, langour and sleep belong to this guna. The essence of *tamas* is absence of light, nescience, *aparakara* and *appravarthi* (inertia) (Aurobindo, 1970).

According to Swami Rama, *tamas* is sloth, and inertia, it produces ignorance and destroys the sense of discrimination. It creates one to inaction. *Tamasic* life, is full of gloom, he does not experience joy or delight. Such people become fat and flabby and prone to disease. *Tamasic* people become passive and suffer from all the disease related to passivity. They are controlled by negative emotions. They are depressed, dependent and helpless. Life becomes burdensome for them. *Tamas* is ignorance. It confuses the mind, causes blunder and generates sloth and indolence (Mishra, 1994).

The qualities of *sattva*, *rajas* and *tamas* dwell in every human mind. According to circumstances one is predominant and the other two are relatively inactive (Rajadyaksha 1986). One should eradicate *tamas*, control *rajas* and when *satva* predominate, beware of pride and ego.

## **Medical typologies**

Charaka views, the mind being beyond the sense is designated to *satva* and is the cause of the activity of sense organ. He divided human beings into 3 classes on the basis of the three gunas. Charaka, as well as Susruta describes even sub-types of *trigunas*. They are based on personal observations.

Medical thinkers and rhetoricians base their classification on the doctrine of three gunas. The *satvika*, is one whose budhi is not clouded by passion, who is free from prejudice and is essentially good. He is courageous and can endure trials and tribulations of life because he has set before himself a definite goal to achieve.

The *rajasik* personality is goaded by *thrishna*, thirst for things, not yet acquired and attachment for things already acquired. As fuel feeds for, the man for *rajasik* desires for more, with each acquisition.

The *tamasic* personality is indolent and negligent. He postpones action. He lacks initiative. He is indifferent to progress and prosperity of life. He mistakes stagnation for full sufficiency

Those of the *satvika* type go upward. The *rajasika* remains in the middle and the *tamasika* go down words. This obviously deals with the spiritual progress rather than the material if such terms could be used (Kuppuswamy, 1985).

### **Personality theory behind IAS Trait conceptions**

According to Mathew (1997) Ancient Indian thought, particularly samkhya yoga, speaks of three qualities in all nature. Inertia (*Tamas*) Activation (*Rajas*) and stability (*Satva*). An individual's mind who can be described and differentiated from mind of other people in terms of the extend to which it has these three components.

Stability generally involves maximum capacity with minimum of desire, dependence of involvement (in the matter of sex or any other activity of work). Inertia involves minimum capacity with wishful thinking. Activation is medium capacity with maximum desire, egoistic effort of indulgence (Mathew 1997). According to

samkhya concept, the sum of the three qualities is always a constant, differences are in terms of the relative strength of the three components.

The three components of personality are mutually exclusive. Interest in being alone is different from inability to mix with others. Similarly effective action is not the same as impulsivity. Modern concept of introversion involve a mixture of inertia and stability and the concept of extraversion include activation and stability.

### **Inertia**

Root fear (death or survival anxiety, existential insecurity) at this level or type of personality as accompanied by defensive non-awareness or inhibition. Inertia is introverted instability or proneness to develop introverted type of mal adjustment under stress.

This is characterised by lethargy, laziness, fear, inhibition, anxiety, shallowness of emotions, low initiative, low self confidence, low self concept etc. People having a large degree of inertia lack energy; they are slow, late, not venturing, shy withdrawn, weak willed, suggestible, submissive, masochistic, intro-punitive and so on.

They are unable to refuse, assert, or argue individually, but are collectivistic and show hysteric collective aggression. They show blind conformity and inability to mix with strangers. They do not have strong emotional ties. The strong emotion they show is fear. They believe in fate and luck (Usually external locus of control) and are superstitious.

### **Activation**

This is characterised by restless over activity, controlled energy, high drive, and inability to remain alone or silent. Activation

is extraverted instability on proneness to develop extroverted type of maladjustment under stress.

Persons having high activation are compulsive mixers, impatient, hasty, risk taking, rash, adventurous, analytical etc. They recognize admire and encourage excellence in others and allow others to keep the benefits and earning as rightful effort.

They have high degree of practical intelligence. They value power, are autocratic, need rigid external moral control, have moral conflicts and so on. They believe in self effort and freedom of will (usually internal locus of control).

### **Stability**

Stability is characterised by high self awareness, sensitivity, freedom, flexibility and control. Stability is stress tolerance and freedom from maladjustment tendencies.

Persons having a high degree of stability can be fast or slow, can work or rest as they choose or as situation demands. They can be very sociable or be alone with equal ease. They can assert if they want to do. They are wise, mature and intuitive. They are creative, self actualising, holistic, balanced, even tempered and dispassionate (Mathew, 1997).

## **STRESS**

Stress can be called as the disturbed state of mind, resulting from the imbalance between the demands of an individual's environment and the individual's capacity to meet these demands. Most of the psychosomatic illnesses like coronary heart disease, hypertension, bronchial asthma, ulcerative colitis peptic ulcer, migraine, psoriasis and dermatitis etc, all get reduced or go into

remission once the stress factors are controlled or tackled properly (Warrier, 1988).

As stress means different things to different people, it is a difficult term to define. Coleman, Morris and Glaros (1974) define stress as "any adjustive demand that includes a state of tension or threat that requires changes or adaptation of an individual to meet his/her needs." Stress is the pattern of specific and non specific responses of an organism to make to stimulus events that disturb its equilibrium and tax or exceed the ability to cope (Zimbardo, 1995). Magill (1996) had used the term stress to designate how human beings respond when they confront circumstances that they appraise as dangerous or threatening and that tax their coping capability. Stress is the pattern of specific and non specific responses of an organism to make to stimulus events that disturb its equilibrium and tax or exceed the ability to cope (Zimbardo, 1995)

Webster's Ninth New Collegiate Dictionary, 1988, defines stress as a bodily or mental tension resulting from factors that tend to alter an existing equilibrium.

Claude Bernad notes that the maintenance of life is initially dependent on keeping the internal environment content in the fare of changing the external environment and his key idea, which had later became the foundation of the modern concept of stress, is that physical challenges to the integrity of an organism provoke responses to counter act the above mentioned threat. Walter Cannon's research was about the regulation of physiological process, with specific mechanism of responses to changes in the external environment while allowing optimum body function. Hand Selye, the most influential pioneer in the field of stress theory and research says

stress is a non specific response, a general response carried by any of a number of environmental stressors. The body's generalized attempt to defend itself against noxious agents became known as the General Adaptation Syndrome, which is divided into alarm reaction, stage, resistance stage and exhaustive stage.

John Mason shifted the emphasis from a nonspecific physiological stress response to an emotionally mediated one and says that stress may have potential to cause disease but individual factors also be taken into account. Richard Lazarus gives emphasis up on cognitive mediation interpretation. His view holds that a person's interpretation of an event is more important than the event itself.

### **Source of stress**

Different theoretical views purpose different sources and severity of stress. Some associate environmental sources of stress. If a person's striving toward a desired goal that is blocked by an obstacle or absence of appropriate goal, frustration occurs (Carson and Butcher, 1992). Both external barriers like flood, power failure and internal barriers like personal limitations and disabilities can lead to frustration. (Munn and Fernald, 1970). Frustration and conflict simultaneous presence of two incompatible goals will lead to stress (Lazarus, 1976, 1984).

Pressure, an adjustive demand, or a threat, the anticipation of harm can (Coleman, et al., 1994) pollutants (Bannons and Feist, 1992) and noise, a sound a person doesn't want to hear (Glass, 1977) can also lead to stress. Personal control is an important factor in appraise the effect of stressor (Levine and Reeder, 1977). Alienated people lack social and emotional support will buffer against the harmful effect of stress (Cooper, 1984; Baum,

et al., 1993). Social problems (Craig, 1993; Evans, et al., 1989) environments of living (Taylor 1990) clashes, (Benyard & Hayes, 1994) and presence of adapting to new culture (Pearlin, 1989) can lead to on going or chronic stress.

### **Reactions to stress**

Stressful events lead to complex reactions so that we respond physiologically, cognitively, behaviourally and emotionally and these different responses interact with and reinforce one another. Even physiological reactions to the same emotion provoking situation will vary widely from individual to individual. Person variables like prior experience, age, social support, some of control type of personality, meaning attached to the situation etc contribute to the severity of the stress . In addition, some situational variables like duration, predictability imminence and frequency of the event also influence the severity.

### **Measurement of stress**

Several approaches have been used to measure stress, the most frequently used are performance tests (which measure the after effects of exposure to stressors). Physiological measures (which measure physiological indices like blood pressure, heart rate, galvanic skin response, respiration rate etc.) and self reports (which measure life events and daily hassles). All the three approaches hold some potential for investigating the effect of stress on illness and health.

### **Coping with stress**

Stress and coping are inter related and dependent on each other (Carson and Butcher, 1992). Lazarus says, coping can be

considered as form of problem solving through cognitive and behavioural efforts (Beech, et al., 1984).

Coping can be investigated from different theoretical perspectives. The psycho analytical perspective concentrate up on the way in which conflicts are resolved-through impulses and testing of reality using defense mechanisms. The life cycle perspective focuses on the mastery and development transitions, where successful mastery lead to increased self esteem, self efficacy and internal control. The evolutionary and behaviour modification perspective gives emphasis to problem solving. The cultural and socio ecological perspective perceives coping as adaptation to the physical environment. In integrative perspective, coping is one aspect of capabilities along with other resources (Frydenberg, 1997).

### **HOSTILITY**

There are certain traits in human character and personality that makes one authoritarian, aggressive or hostile. These are all important from social as well as health backgrounds and are necessary to be studied in depth for correct understanding of their influence in different problems and for certain corrective actions (Kool, 1980).

Concepts like authoritarianism hostility, aggression etc are confused and used interchangeably. For example, people generally believe that authoritarianism possess high degree of hostility and aggression but this is not so. However when one does seek some relationship between these variables, it is altogether different, inviting a special meaning in different situations (Kool, 1980).

## **Nature of Hostility**

Hostility, as Buss (1961) defines, is an implicit verbal response involving negative feelings (ill will) and negative evaluations of people and events. It is basically implicit in nature, consisting of perception, categorization and evaluation of past attacks on oneself, rejections and deprivations. Kagan (1971) defines hostility as wish for a specific class of goals, to cause pain, distress or anxiety to another person or a surrogate of that person.

The person to whom hostility is directed is the one who is believed to be the thwarting agent or the one who threatens the valued standards. However the nature of hostility will be some what complicated if an analysis is possible reactions in a quarrel between A and B as made under..

1. A allows B to attack (Answers hostility with affection)
2. A gives blow for a blow (Answers hostility with hostility)
3. A becomes cool (Answer hostility with drawl of affection).
4. A leaves the place (With draws from communication, that is, refuses him with both hostility and affection).

The first three forms are simple to understand but the fourth one, that is, withdrawal reaction, leads to discontinuance of communication resulting in development of hostility impulses into potential attitudes. Conversely, however, hostility may be a sign of cohesiveness in that a member feel so safe with each other that they can be frank in their expression of hostility.

Buss (1961) has contended that hostility may be regarded as a continued anger response that has none of the autonomic or postural aspects of anger. When an anger stimulus in presented to a

person, it elicits an anger reaction which process involves evaluation of the stimuli in the form of a negative source. Hostility resembles anger in its orientation toward injury and punishment but differs in lacks of autonomic and postural components of anger. However, for some individuals the association between anger and hostility is close, and they have only to recall past humiliation and resentments in order to become angry.

The relationship between general hostility and its manifest content has been shown to be related to the varying effects of instigation and inhibition. Megargee identified that under controlled or habitually aggressive and chronically over controlled, assault on the basis of the role of inhibition and instigation, play in these two types of individuals. Whereas the under controlled is characterized by minimal inhibitions against the expression of aggression when provoked, the other type, over controlled, assaultive, is just the opposite. He is characterized by excessive, rigid inhibitions against the expression of aggression under any circumstances.

Hostility may turn either inward (against the self) or outward (against others). Generally speaking hostility, fails inwards when some necessary functions like socialization are required for helping the superego, it turns out ward in service of the ego in order to gain something, Unfortunately, the M.M.P.I subscales which measure different aspects of hostility fail to correlate systematically with each other. It seems, therefore, that the available MMPI indices are not well established empirically in reflecting all aspects of hostility (Kool, 1980).

### **Type A behaviour and Hostility**

The concept of Type A behaviour originated many years ago, included a cluster of three characteristics: (1) an exaggerated sense

of time urgency, often trying to do more and more in less and less time; (2) a general sense of hostility, frequently displaying anger and irritation, and (3) intense ambition and competitiveness. In contrast, people who are more relaxed and laid back were classified as displaying the Type Behaviour pattern (Rosenman and Chesney, 1982; Janisse and Dyck, 1988).

Friedman and Rosenman (1974) interviewed and classified more than 3000 middle aged, healthy men as either Type A or Type B. They tracked the health of these men for eight years and found that Type A men were twice as likely to develop heart disease than the type B men. This held true, even when the type A men didn't display other known risk factors for heart disease, such as smoking, high blood pressure and elevated levels of cholesterol in their blood. The conclusion seemed clear: Type A behaviour pattern was a significant risk factor for heart disease.

Although early results linking the type A behaviour pattern to heart disease were impressive, studies soon began to appear in which Type A behaviour didn't reliably predict the development of heart disease (Williams 1989). These findings led researchers to question whether the different components of the Type A behaviour pattern were equally hazardous to health. After all many people thrive on hard work, especially when they enjoy their jobs and high achievers don't necessarily suffer from health problems. (Robbins & others, 1991).

Continuing the trend (Rodin & Salovey, 1989) recent perspective studies do not indicate that type A individuals are more likely to be at risk for CHD mortality and MI, than their Type B counterparts (Eaker et al., 1989, Mathews 1988, Orth-Gomer & Uden 1990). Moreover, Type As who reported high levels of life

events generally, or loss events specifically, were not at higher risk for CHD mortality or MI than other groups. (Hollhis et al., 1990). Newly recognized is that Type A may be a risk factor for poor health-related quality of life, including chest pain (Eaker et al., 1989), general health problems (Shoham, et al., 1988) and injuries, especially among Types As that colleagues rated low in amicability (Lee et al., 1989).

Type A is a multi dimensional concept, and efforts to disentangle coronary prone and non coronary prone components have with few exceptions pointed to the importance of hostility, anger expression in the etiology of CHD. Clinical ratings of potential hostility based on interview responses were significant predictors of CHD morbidity and mortality in western collaborative group study data (Dembroski et al., 1989, Hecker et al., 1988, Houston et al., 1992). The Cook - Medley scores of hostile or cynical attitudes predicted CHD or total mortality in three of six prospective studies that smith (1992) reviewed.

Feeling a sense of time urgency and being competitive or achievement oriented didn't seem to be associated with the development of heart disease. Instead, the critical component that emerged as the strongest predictor of cardiac disease was hostility (Miller & others, 1996).

Hostility refers to the tendency to feel anger, annoyance, resentment and contempt, and to hold negative beliefs about human nature in general. Hostile people are also prone to believing that the disagreeable behaviour of others is intentionally directed against them. Thus hostile people tend to be suspicious, mistrustful, cynical and pessimistic (Barefoot, et al., 1994).

Hostile men and women are much more likely than other people to develop heart disease. In one study that covered a twenty five year span; hostile man were five times as likely to develop heart disease and nearly 7 times as likely to die than non hostile men. (Barefoot and others. 1983). Subsequent research has found that high hostility levels increase the likelihood of dying from all natural cause including cancer (Miller and others, 1963; Kenvuo & others, 1988)

### **Hostility-how predisposes to heart disease.**

The research evidences demonstrated the role of personality factors in the development of stress related diseases is impressive. However, its important to keep in mind that personality characteristics are just some of the risk factors in over all picture of health and disease (Adler and Mathews, 1994).

Hostile people tend to react more intensely to stressors than other people do (Lyness, 1993). They experience larger increase in blood pressure, heart rate, and the production of stress related hormones. Hostile men and woman also tend to create more stress in their own lives. They experience more frequent and more severe negative life event and daily hassles than other people (Smith, 1992).

Other negative emotional Status in addition to hostility may be implicated in the development of CHD. Dembroski et al. (1985) found that hostility and anger were interactive in producing increased risk of CHD. Booth-kewley and Fried man (1987) had found strong association between CHD and hostility.

Although still a matter of ongoing research, these developments in refining the Type A construct and identifying its lethal components are important for several reasons. First they

enable the researchers and clinicians to see exactly which components of the behaviour may need to be modified to reduce risk for CHD. If hostility, is the chief culprit in the Type A complex, then more refined interventions, specifically directed at hostility be more successful in reducing CHD risk than interventions directed more generally to Type A behaviour.

In a cluster analysis hostile men, with controlling, dominant nature were more prone to CHD (Houston et al., 1992). In a sample of blue collar men, those who scored highly on combined dimension of need for approval, competitiveness, impatience and irritability and inability to stop working had a higher risk of coronary disease, while being hard driving or perfectionistic did not relate to CHD (Siegrist et al., 1990).

The word hostility means being antagonistic or showing enmity. It may take in the form of direct attack to the enemy or resentment. According to Ramsay, it has got different components like anger expression, anger experience neurotic disagreeableness anger-out, resentment suspiciousness, to hostility, cynical hostility and neurotic hostility among which only some are directly related to the etiology of CAD. Cynical hostility and Anger out are of utility for identifying CAD. However anger expression is of utility for differentiating between CAD symptoms and disease severity

### **Assessment of Hostility**

Problems of measurement have contributed to the difficulty of estimating the true effect of hostility. Measures of hostility and anger are heterogeneous and some overlap with dispositions that may be non coronary prone. Three of six factors from a rational analysis of the Cook-Medley scale predicted CHD: cynical attitudes, hostile effects and aggressive behaviour (Barefoot et al. 1989).

Health psychology would benefit from further development of valid measures of the major domains of hostility for are in large scale, prospective studies (Adler and Mathews, 1994).

Hostility is more strongly implicated as a risk factor for CHD than other dimensions of Type A behaviour (Dembroski, et al., 1998). A particular type of hostility may be especially implicated namely cynical hostility, characterized by suspiciousness, resentment, frequent anger, an antagonism, and distrust of others (Barefoot, et al., 1989). Interestingly among type this with cardiac damage, hostile cognitions are also greater. Thus, hostility may be a risk factor for cardiac damage independent of its relation to Type A behaviour syndrome (Weinstein, et al., 1987). As yet, however the measurement of hostility has it self proved controversial (Spielberger et al., 1985). Moreover, while most studies have found an association between hostility and CHD, not all studies have. (Mc Cann, 1988).

A number of scales to measure hostility have been developed in the art 5 decades. The sales constructed to measure hostility before 1960 had been summarized by Megargee and Mendelsons is a very useful article. Another article by Megargee in 1970 had also summarized various scales of hostility with special reference to violence (Kool, 1980).

42 items Anger-Hostility complex questionnaire authored by Mc Dermott and Beech (1989) Cook and Medley (1954) derived from Minnesota Multiphasic Personality Inventory Anger experience and Anger experience subscales of Costa Mc Crae & Dembroski, Rerentment and Suspiciousness Questionnaire of Buss and Durkey (1957) etc. are some of the measures used by researchers, to assess hostility components. Kool (1980) also had developed a

hostility measure in Hindi and its translation to English is also standardized.

Gupta, Varma and Kulhara (1989) argues that among the Rorschach's ink blot text, card II, III and X has highest ability to project hostility and they also can be used for assessing hostility.

### **HEALTH AND HEALING**

There are numerous methods to arrive at a diagnosis in Allopathy. Acute emergency situations also who handled by Allopathy. Since it is the mind that controls the body, if mind is not included in the preventive aspect, the body can not be healthy. Homeopathy can be safely tried in most cases. Some systems like Ayurveda, Unani, Nature Cure etc recommended avoidance of sour food, heavy food, fried food, cold drinks etc. The same system recommend another kind of diet. Allopathy also make dietary recommendations, they are based mostly on the nature of biochemical constituents. Currently it seems ignoring a lot of knowledge. If other systems recommend or prohibit certain foods, it labels the idea as unscientific (Jaggi, 1998). On the basis of availability of healing system, publicity of a practitioner and their own evaluation about the rationality of the curative capacity of the system, people follow different systems of healing, diseases.

'We are what we eat', observed Charaka, Susrutha and Hippocrates (Leverton, 1965).

#### **Allopathy – A Scientific Approach**

Developed in the west, based on scientifically verifiable concepts, allopathy is able to diagnose and treat many health disorders. It is an answer in many life threatening situations and acute conditions. It offers surgical remedies. Last century had

witnessed miraculous surgical innovations such as organ transplantations, surgery and micro surgery to name a few. This system treats a disease with drugs having opposite effects to existing symptoms. Stressing both prevention and cure of disease, on giving and well documented research in allopathy ensures continuous feedback and improvement.

### **Homeopathy: Gentle, long term benefits**

Coined from the Greek words '*homois*' meaning 'similar' and '*pathi*' meaning sickness, homeopathy received its name from its German founder Samuel Hahneman. Based on the principles of '*Similia Similibus Eurentur*' (like cures like) homeopathy proves that the agents that bring about symptoms of sickness can cure the cause of those very symptoms when used in extremely diluted form. This phenomenon, though originally scottted at by practitioners of modern medicine, is more and more, being accepted as credible due to the continuing success of laboratory experiments.

### **Ayurveda – Fundamentals of healthy living**

Developed over the past 4000 years Ayurvedam (Ayur means life and veda means knowledge) a traditional health care system of India and a science, of healthy long living, encompasses many branches of medicines. Everything in the world is ultimately composed by 5 *bhutas* (elements) -*Prithvi* (earth), *apa* (water) *teja* (fire) *vayu* (air) and *akasha* (ether). This concept, called the '*panchabutha theory*' is strictly adhered to by Ayurveda. *Kapha*, *pitta* and *vata*, collectively known as the *doshas* or *tridoshas* are equivalent to the four *humours* in Greek medicine: blood, phlegm, yellow bile and black bile.

In the treatment of disease, the Ayurvedic physician tries to correct the diagnosis imbalances through appropriate diet and drugs. Ayurvedic medicines are mostly derived from vegetable sources through mineral compounds and sometimes drugs of animal origin are also used. As ancient Indian healing system, Ayurveda is also called 'the science of living'. Following a methodological approach of diagnosis by eliciting the patients' family history, examining the entire body, categorizing the patient's temperament, analyzing his digestion, and reading the pulse, Ayurveda physician concludes which of the *doshas* is imbalanced.

### **Nature Cure – Healing from Within**

The term Naturopathy was coined by a nineteenth century German homeopath John H. H. Scheel. Gandhiji was one of the greatest proponents Nature Cure methods. Nature Cure-also known as naturopathy-is a combination of a variety of natural therapeutic and methods of healing. Paved through the ages, this system leans upon the wisdom of ancients as well as modern science. The curative properties of Nature's elements the sun, air, earth and water-are employed as natural cures. The primary cause of all diseases, according to Nature Cure, is the conscious or unconscious violation of Nature's laws, and disease in reality is a self-purifying effort by the body to heal itself.

Nature Cure professes that what affects one part affects the entire body, no matter by what name the disease is called. The body is a complete entity and reacts to disease in to, it must therefore, be treated as a whole and not in parts. All healing comes from within the body itself. There are self curative forces inherent in the human body working toward health and healing, the physicians through their nature cure techniques, lends only in intelligent assistance.

According to Nature Cure, the primary cause of all disease is a conscious or unconscious violation of Nature's laws. This may be thinking, breathing, eating, drinking, dressing, working, resting, as also in moral, social and sexual conduct (Gerald, 1965). It is not the germs that initiate disease, they appear and flourish only where there is a morbid accumulation of waste matter (toxin). With will power and perseverance, it provides effective and holistic healing.

The basic principle of Nature Cure is that all healing comes from within the body itself as the body strives to maintain a human body equilibrium. Disease indicates that the human body is working towards health and healing. In Nature Cure, there is a unity of disease and treatment. Since the body is considered to be a complete entity which reacts to a disease as a whole, treatment is geared towards the body as a whole too. However there must be sufficient inherent vitality left in the patient for the body to react towards a cure (Madhavankutty, 1995).

### **Orthopathy**

Orthopathy is the term used to denote that disease symptom itself is the cure process. The concept of Orthopathy was published in 1852 by Jennings, I. (1960) in Ohio. Modern medical doctors like Trall, Shelton, Tilden, Clements and Dodds have later associated with Jennings in this scientific movement in America. Earlier Naturopathy has mostly concerned on suppression of symptoms by natural means and Naturopathy also sought remedial measures, but through natural means. They have identified toxemia in the body is the major cause of all diseases, toxins, mostly of destructive chemical in nature. Rectification of health is possible through correct nutrients. Orthopathy believes that cure is generated by the body itself. They did not believe in drugs, as they suppress symptoms, which is not cure in its real sense and the

symptoms get further complicated by drugs. The Germ theory and Calorie estimate theory also were not acceptable to nature curists. They dwelled on the restoration of bio energy for the elimination of any disease symptoms. Any symptom is sign of depletion of bio energy and so there is no point in suppressing or arresting a symptom. Though the above mentioned are the major healing systems, in Indian set up there are more than 64 other alternative systems which were used to treat both physical and mental illnesses.

Yoga is not basically a method of treating disease, but different yogic practices have curative and prophylactic values. Yogic meditation cures mental stress and strain as well as the disease caused by them (Hassanagas, et al., 1998). In combination with Nature Cure, *Yogasana* can take care of common ailments and chronic diseases, even for cardiovascular disease (Hassanagas, et al., 1998).

Because of a preoccupation with technology and science we shouldn't forget the psychological and emotional facts of our personality. Today we have a kalido scopic variety of therapeutic tools. Let the new century bring a more humane system of medical relief in which human being will be seen as a total organism, with a very heavy premium on the emotional and psychological aspects of his personality. Let noble thoughts come to us from all sides-says *vedas*.

Vagbhada gives 9 commandments for good health like "eat wholesome food, engage in enjoyments, act circumspectly, non indulgent in sexual pleasure, be generous equally consider everybody, be truthful, be patient and be trust worthy". The same idea is expressed in Bhagawad Geetha. "If you eat and enjoy moderately, if you are engaged in good deeds, if you can realise yourself and consider life as a duty, you will never suffer sorrow."



## **RELATED STUDIES**

- Personality and CHD
- Personality & Other Psychosomatic Disorders
- Stress and CHD
- Stress and Other Psychosomatic Disorders
- Hostility and CHD
- Hostility and Other Psychosomatic Disorders
- Personality Stress and CHD
- Personality Hostility and CHD
- Stress and Hostility
- Personality, Stress and Hostility
- Intervention Related Studies
- Yoga- as therapeutic intervention
- Life Styles

Different studies conducted by researchers in the similar variables, sample and intervention of the present study, were collected and classified in the following headings and reviewed.

### **Personality and CHD**

Caffrey (1968, 1969) studied some 1500 Trappist and Benedictine monks in 26 different mountains. The highest prevalence rates of CHD occurred among those group of monks having a higher proportion of pattern A individuals (as measured by modified stress interview), living in what was characterized as a Type A monastery and taking a high fat diet. When any one of these three factors was missing, the groups had low or comparable rates.

Jenkins *et al.* (1971) found that 83 coronary patients, selected from the Western collaborative Group Study (WCGS) scored significantly high on the A-B scales of the JAS (Jenkins Activity Survey for Health Prediction) than a sample of 524 men with out coronary disease.

Jenkins *et al.* (1974) administered the adult Jenkins Activity Scale which measures anxiety JAS to 2750 of the subjects in the WCGS (Western Collaborative Group Study). All cases were free of CHD at the time of testing in 1965. Afetr 4 years the major results showed that higher scores on the JAS had 1.7 times the incidence of new CHD of low scorers and there was a continuous relationship between JAS scores and incidence of CHD, with high, middle and low pattern A scores being associated with high, middle and low CHD incidence rates.

Blumenthal *et al.* (1975) conducted a double blind study of 156 patients referred for diagnostic angiography at Duke University Medical Centre. Each patient was classified as Pattern A, Pattern B,

on the basis of interview technique. 59 of the (82%) 72 patients with at least a 75% narrowing of one coronary artery turned out to have been classified as Pattern A, whereas 44 (63%) of the 70 patients with out significant disease were classified as Pattern B. Moreover the average degree of atherosclerosis was significantly greater in As than Bs, even when age and sex were covaried in the analysis. These findings were replicated in a study at Boston University School of Medicine that used JAS to classify 94 patients as A or B (Zyzanski, Jenkins, Ryan, Flessas & Everist, 1976). 55 men, with more than 50% arterial obstruction in 2 or more vessels scored significantly higher on A-B scale than the 36 more whose arteries were less diseased.

A study using A-B Scale score of the JAS found that it was the strongest single predictor of recurrent CHD among a set of available variables, including serum cholesterol and number of cigarettes smoked daily (Jenkins, Zyzanski and Rosenman, 1976).

In a paper named 'coronary prone behaviour and angiographically documented coronary disease', presented at the Annual meeting of the American Psychosomatic Society at New Orleans, Glass explained that the increasing use of coronary angiography had resulted in independent studies of association between pattern A and the extent of atheromatic deposition in coronary arteries of living patients (Glass, 1976).

Shekelle et al (1985) studied more than 3000 people, and measured their type A characteristics, and were followed for seven years. They found no relationships between the behaviour pattern and incidence of a first attack, which clearly cast doubt on the validity of initial studies that found a positive relation between CAD and Type A behaviour. Many researchers now believe that not all

components of Type A behaviour are pathogenic, but rather specific personality traits such as hostility and anger may be associated with coronary disease.

In a study conducted among 814 men Hlatky (1986) had concluded that psychological factors revealed through Minnesota Multiphasic Personality Inventory, Zung Depression and Anxiety Scales, Type A Structured Interview and Jenkins Activity Survey are strongly related to work status in patients with CAD and may be more important than medical factors.

Smith and Anderson (1986) had found that type A behaviour has been established as a risk factor for Coronary Heart Disease. Psychological and social processes are integral aspects of the link between the behaviour pattern and the disease.

Dimsdale (1988) says that the Western Collaborative Group Study (WCGS) showed a two fold higher role of CAD in patients with type A behaviour compared to those with type B. The subsequent 13 year mortality among the 231 survivors of Myocardial Infarction (MI) in the WCGS was significantly and unexpectedly lower in Type A than type B patients. The investigator had sited the relevance of further research in this area.

Singh and Thapa (1989) had studied 24 patients suffering from coronary heart disease admitted in hospital with mean age of 51 years using Type A Self Rating Scale consisting of 21 items for type A and 7 for type B. In the results the percentages of type A and type B patients were equal. Type A patients were, however, found to be younger in age, belonged to power strata and had a longer history of coronary heart disease as compared to type B subjects.

A study by Blatt and Cornell (1993) gave formulations of two personality styles, dependent and self critical that provide a theoretical model for integrating findings linking personality factors to the onset and clinical course of immunological and cardiovascular disease. The model of a dependent personality style appears to provide a structure for integrating within an independently established conceptual system, the use of repressive defences, feeling of helplessness, emotional liability and preoccupations with interpersonal relationships which have each been found to be predictive factors in neoplastic disease. The model of a self critical personality style appears to provide a conceptual structure for integrating the diverse findings indicating that personality factors of social isolation and mistrust, along with preoccupation with anger, autonomy, assertion, control and self worth are important in cardiovascular disease.

Nelamed, Harari and Green (1993) examined the relationship of type A behaviour to ambulatory blood pressure and heart rate reactivity under high and low noise conditions. Results indicated that when workers were exposed to high noise levels type, A behaviour was positively related to diastolic blood pressure. Tension experienced by type A workers exposed to noise stress may have served as a mediator of cardiovascular reactivity.

In another study, Keningsberg, *et al*, (1994) the JAS was administered to 48 hospitalised coronary patients and 42 patients hospitalised for other diseases. The results showed that CHD patients, regardless of age and sex scored more in the pattern A direction than those with other diseases.

Buchanan (1995) studied 120 men who suffered a first heart attack, through videotaped interview. He studied the relationship

between CHD, Type A behaviour pattern and pessimistic explanatory style. The content analysis of the video taped interview revealed that the CHD patients were more pessimistic and they had type A behaviour patterns.

Basu and Neogi (1999) examined the possible association of psychological variables and coronary heart disease among sample consisted of 617 male subjects of which 313 cases had abnormal ECG and 304 subjects were with normal ECG. Results revealed that normal subjects didn't differ significantly from those with abnormal ECG with regard to their scores on Type A behaviour pattern and successful events. Compared to individuals suffering from cardiovascular diseases, normal subjects had greater ability to resolve life conflicts. The paper also emphasised the need for a broad spectrum of scientific enquiry in this area.

The association between type of personality and CHD has been studied by many scientists like Caffrey (1968, 1969), Jenkins *et al.*, (1971)- through WCGS, Keningsberg *et al.*, (1994), Blumenthal *et al.*, (1975) Jenkins *et al.*, (1974) Neurnberger (1981), Shekelle *et al.*, (1985), Hatkey (1986), Smith and Anderson (1986). Dimsdale (1988) Singh and Thapa (1989), Blatt and Cornell (1993) Neelamed *et al.*, (1993) Buchanan (1995), Bann and Neogi (1999). Most of these found positive relations. Bann and Neogi (1999) says that CHD patients and normals didn't differ significantly in type A; Buchanan (1995) had found that those patients are more pessimistic. Blatt and Cornell (1993) says that certain personality factors like social isolation, mistrust, anger etc are having stronger association to CHD. Though type B's also get affected by CHD, type A's get this disorder in a younger age (Singh and Thapa, 1989). Long terms studies of WCGS, pointed out the relevance of further exploration of the

variable type A, to reach in more valid conclusions about the link between heart and personality (Dimsdale 1988).

### **Personality and other Psychosomatic Diseases**

Twin studies by Torgersen and Kringless (1970) revealed that who was more submissive, quite, withdrawn, obedient and insecure had the higher systolic blood pressure. Personality traits such as obedience, timidity, shyness, self-insecurity and passivity in childhood are found as related to blood pressure.

According to Drummond (1982) introversion, type A behaviour and increased frequency of socially desirable responses is likely to be associated with an elevated casual systolic blood pressure and found as a pre-hypertensive personality.

Irvin, *et al.* (1989) compared personality differences between hypertensive and normotensive individuals and have found significant differences on neuroticism, trait-anxiety and state anxiety on Jenkins Activity Survey (JAS) type A scale and on the Framingham type A scale.

Preetha (1999) investigated the dimension of emotional disposition and personality in relation to psychocutaneous disorders. The study concluded that the psychocutaneous group were characterised by relatively lower scores of inertia and higher scores on activation and stability when compared to other skin disorder groups.

Though more studies are reported about CHD and type A link this aspect of personality is also reported as being studied in relation to many other psychosomatic disorders. They include hypertension, mainly (as elevated blood pressure has a strong prediction to heart ailments), skin diseases, ulcer, cancer etc. A few such studies

among hypertensions were reviewed, like Drummond (1982), Irvin *et al.*, (1989), Tongersen & Kringless's twin study in (1970) and Preetha (1990) etc.

### **Stress and CHD**

Greene *et al.* (1974) explored the cases of 26 male patients who died suddenly from CHD, in an industrial population of 44000. Data were obtained from plant medical records and from direct interviews with the surviving next of kin. The results indicate that at least 80% of the 26 patients were reported to have had clinical symptoms of depression for a week up to several months prior to death. Study by Kavasagh and Shephard (1973) of 122 coronary victims in Toronto obtained similar results. In the year prior to these attack, these patients were beret with problems in business and else where as increased fatigue was noted in the week prior to attack.

Bhargava, Sharma and Agarwal (1982) found that various life events occurred more frequently among coronary heart patients than the controls. Blood pressure fluctuation seem to be correlated with situations where more often than not they found very vigilant, tense, angry disappointed, helpless or simply stressed (Dieter, 1983).

Levi (1983) pointed out the relationship between psychological stressors and cardiovascular health and presented a model of psychosocial factor-stress-health system. It is contended that psychosocial factors can precipitate or mediate Coronary Heart Disease, influence well being and modify the effects of intervention. The etiology of coronary heart disease is suggested to be multifactorial including discrepancies between human ability, needs and expectations, environmental demands, opportunities and individual perceptions of the interactions of these factors.

Situational factors contributing to CHD include over and under stimulation, role conflicts, lack of sense of belonging and group support and physical and chemical stressors.

Tavazzi, Zotti and Rondanelli (1986) had studied about the role of psychological stress in the genesis of lethal arrhythmias in patients with Coronary Artery Disease. 19 patients with recent uncomplicated Myocardial Infarction were studied during control conditions and during stress. The results showed that mental stress can induce measurable cardiac electrophysiological modifications in uncomplicated post infarct patients and such modifications may favour the appearances of life threatening arrhythmias.

Meissel et al (1991) concluded that the occurrence of natural disasters and personal traumas has also been correlated with an increase in cardiac events. They had conducted their study during Gulf war in 1991, among population living close to Tel Aviv, where missile attacks were heaviest. There was increase in the sudden death rate during 1991, compared to the previous one year. There was increase in the rate of hospitalisation due to MI. Similarly Leon et al (1996), reported a number of sudden cardiac deaths, during a massive earth quake rocked Los Angeles in 1994 which were severe uncontrollable physical stress to the victims.

Work related stress is the most widely studied form of chronic stress. One prospective study of 1928 male workers followed for six years showed a four fold risk of cardiovascular system related death associated with job strain (Karasak et al, 1981). Their subsequent studies like Theorell et al (1998) had found supporting evidences, but a few studies like Hlatky et al (1995), had found negative relationship. According to Pickering (1996), these negative finding may be partly due to the population tested, most of whom (including

controls) were symptomatic, so job strain may be observed in such population.

Terry (1992) examined a set of variables derived from stress and coping literature as correlates of patients level of psychosocial adaptation to myocardial infarction. Adaptation to infarction appeared to be facilitated if the subject had internal control beliefs, high self esteem, low trait anxiety and high quality family relation.

Jindal, Singh and Mehra (1994) compared the stressful life events of 60 patients diagnosed as having the first attack of myocardial infarction (M1) with 60 control with out any history of MI (aged 35-55 years) subjects were administered the presumable stressful life events scale. Results revealed that (a) higher number of stress full life events were experienced by the M1 group compared to controls (b) higher score was obtained on impersonal items than on personal item by both the groups and (c) a higher number of desirable events were experienced by the clinical group.

Allison *et al.* (1995) conducted a study to determine the effect of psychological distress measured with a commonly used screening questionnaire, on 6 month morbidity and rehospitalization costs in coronary patients. 381 patients were selected as subjects and the results of the study support to the hypothesis that psychological distress adversely affects the prognosis in coronary patients, confirm the added morbidity and rehospitalization costs attributable to psychological distress, and suggests the potential for improving the prognosis in selected coronary patients by identification and appropriate treatment of psychological destress.

Sheps et al. (1995) studied about correlation of plasma-beta endorphin levels at rest and after psychological stress with thermally measured pain threshold in patients with Coronary Artery Disease.

The results showed that psychological stress significantly increases plasma beta-endorphin levels during the period, after the occurrence of a stress. There was significant positive correlation between pain threshold and beta endorphin levels after stress. Psychological stress caused increased cardiovascular reactivity

Grossman et al. (1996) studied about cardiac vagal control and dynamic responses to psychological stress among patients with CAD. Two groups of patients with CAD, who differed in level of cardiac vagal control were compared in their cardiovascular responses to psychological stress. Patients with lower vagal control manifested increased reactions in diastolic blood pressure and rate-pressure product to mental stress and tended to have greater systemic vasoconstrictor.

In their scientific paper on stress and coping, Palsane and Lam (1996) tried to focus on the difference in the conceptualisation of stress in the east and the west in the light of differences in the social and cultural contexts. They discussed the modern notions of stress and coping and their eastern equivalents such as suffering or '*dukha*'. The western approach is concerned with distress or negative aspects of stress, where as in eastern thought, both pleasure and pain are considered stressful and there is greater acceptance of suffering. The eastern perspective emphasizes long term strategies such as meditation and evolving a philosophy of life.

Barnett et al. (1997) conducted a study using duplex ultrasonography measured the change in the area of all detectable plaques in the extra cranial carotid arteries during 2 years. Cardiovascular reactivity was assessed by measuring changes in hemodynamics during a frustrating cognitive task. Established risk factors for atherosclerosis were measured by interviewing patients a

physical examination and blood assays for 351 subjects with wide range of types of atherosclerotic disease. Results showed that Atherosclerotic plaques were present in the carotid arteries of 273 subjects. This support the hypothesis that hemodynamic responses under conditions of mental stress may influence the progression of atherosclerosis.

In an article, Kop (1997) provides a selective review of the effects of psychosocial factors and responses to acute mental stress on the onset of acute coronary syndromes. The literature suggests that the relationship between the anatomical severity of CAD and likelihood of subsequent cardiac events such as myocardial infarction is not linear.

Krantz, *et al.*, (1998) provides an overview of research on the bio-behavioural antecedents of coronary heart disease. Stressful occupational settings characterized by high demands and low levels of control over the job are associated with increased coronary risk. His studies proved that acute stress and anger play an important role in the development of CAD.

Kaprio et al (1987), through another study of thousands of individuals followed up for four to five years showed the highest relative mortality occurred immediately after bereavement, with a two fold increase on risk for men and a three fold increase in risk for women.

Several research teams studied the possible physiological mechanisms by which acute stress may trigger coronary events. It was found that acute psychological risk factors may result in impaired dialation of the coronary vessels in coronary patients (Howell et al, 1997), decrease in plasma volume (Patterson et al, 1993) and increased platelets activity and blood clotting tendency

(Patterson et al, 1995). These responses may result in an imbalance between cardiac demand and decreased coronary blood supply and may lead to cardiac ischemia (Kop, 1999).

Acute psychological factors like stress was studied which may also elicit electrical instability of the myocardium, and cause life-threatening arrhythmias. Lampert et al (2000) had also accumulated evidence of psychological factors that can trigger malignant arrhythmias.

Kuroda et al. (2000) evaluated the relationship between the mental stress induced decrease in left ventricular ejection fraction (LVEF) and the severity of exercise-induced ischaemia in 20 patients with CAD who underwent radio nuclide ventriculography during mental stress testing and stress myocardial perfusion single photon emission topography. It is seen that changes in blood pressure and heart rate were not significantly correlated with the change in LVEF and it is suggested that mental stress impairs systolic function by including transient myocardial ischaemia. The effect of neuro hormonal responses during mental stress on LV systolic function may also be important in patients with CAD.

Parveen, *et. al.*, (2000) had conducted a comparative study of death anxiety among heart patients and normals. The results revealed that the heart patients not attacked, attacked once, and twice scored significantly higher in Death Anxiety scale than the normal group subjects. That is, they had higher stress compared to normals, because in two studies conducted by Sinha and Nigam (1993) among terminally ill and surgical patients it was revealed that stress is a good predictor of death anxiety (Greyson, 1991).

Jain *et al.* (2001) studied about day to day reproducibility of mental stress which induced abnormal left ventricular function

response in patients with Coronary artery Disease and its relationship to autonomic activation. They studied the reproducibility on different days of 3 commonly used mental stress tasks on left ventricular ejection fraction, heart rate, blood pressure, and rate pressure product and the relationship of reproducibility to autonomic activation as determined by heart rate variability in patients with chronic stable angina. Ten patients were selected for the study. In the result it was seen that of the commonly used mental stress tasks anger recall produced left ventricular dysfunction with the highest frequency and is the most reproducible task when retested 4 to 8 weeks later in patients with CAD.

Kop *et al.*, (2001) examined the prevalence and hemodynamic determinants of mental stress induced coronary vasoconstriction in 16 patients undergoing diagnostic coronary angiography. The results showed that vasoconstriction in angiographically diseased arteries varies with hemodynamic response to mental arousal. Combined increase in cardiac demand and concomitant reduced myocardial blood supply may contribute to myocardial ischemia with mental stress. Grossman *et al.*, (1996) also had conducted similar studies.

Duncan (2001) made a study in which the objective was to dissociate the effect of inotropy from activation change during dobutamine stress on left ventricular long axis function in patients with CAD. 25 patients with CAD and normal left ventricular cavity size and 30 with cavity dilation. 18 with normal activation and 12 with left bundle branch block were compared with 20 controls. In result it was seen that, in CAD inotropy is preserved with development of ischemia but the normal increase in amplitude is lost and prolonged activation delays the time course of shortening, causing pronounced incoordination.

A study by Kanel, Mills & Dimsdale (2001) explores whether changes in blood coagulation, anti coagulant and fibrinolysis activity may constitute psychobiological pathways that link psychological factors with coronary syndromes. 68 articles were critically reviewed. The results showed that in healthy subjects acute mental stress simultaneously activates coagulation and fibrinolysis, within a physiological range. In patients with atherosclerosis however pre-coagulant responses to acute stressors may outweigh anticoagulant mechanisms and thereby promote a hypercoagulable state. There is also some evidence that points to hypercoagulability in depression. Association between psychological factors and several coagulation and fibrinolysis variables related to atherosclerosis provide a plausible behaviour link to CAD.

As stress is a vast topic in Psychology, it was studied also in relation to CHD. Stress is found to be high among heart patients and as stress will lead to sympathetic system, stress arousal gives an additional overload of work to the cardiovascular system. Many of such kinds of studies were conducted, in the year 2001, by Jain *et al.*, Kop *et al.*, Duncan, Kanel *et al.*, etc and in the year 2000, Kuroda *et al.*, Parveen *et al.*, etc. All of them had studied different cardiovascular function, in relation stress and argues that increased stress is harmful to the heart functioning. Researchers in the similar area also include Jindal *et al.*, (1994) Meissel (1991), Greene *et al.*, (1994), Karasak *et al.*, (1981) Bhargava *et al.*, (1982), Levi (1983), Terry (1982) Allison *et al.*, (1995), Sheps *et al.*, (1995), Grossman *et al.*, (1996), Krantz *et al.*, (1998), Tavazzi *et al.*, (1986) Howell *et al.*, (1997), Patterson *et al.*, (1993) etc. Even adaptation to the MI, is affected by anxiety Terry (1992) and death anxiety Parveen *et al.*, (2000).

## **Stress and Other Psychosomatic Disorders**

Rahe and his colleagues (1971, 1974) have conducted a series of studies of the association of human subjects psychological states with their serum concentration of cholesterol among navy personnels. Elevated serum cholesterol levels were observed when subjects felt over burdened by demands of training, when subjects reported feelings depressed, angry, fearful and lethargic and when there was a threat of imminent failure.

Srivastava and Sinha (1989) had studies 100 subjects, of age range of 22-65 years, belonging to middle class Hindu families using Cornell Medical Index Health Questionnaire and Presumptive Stress Life Events Scale . Stressful events and the events of the past one year were related with the symptoms of physical as well as emotional distress. More significant relationship between stressful events of past one year and symptoms of emotional distress were found than between life time events.

Blumenthal, *et al.*, (1993) compared neuro behavioural performance of hypertensive and normotensive men and women using neuropsychological information processing and psychosomatic assessments. Results showed that compared with normotensive individuals, the hypertensives performed more poorly on a set of tasks that measure speed of information processing and short term memory and reaction time. The effects of hypertension on neuro-behavioural functioning could not be accounted for on the basis of age and education.

Saigeetha, and Kalanidhi, (1995) have found that there is a significant difference between diabetics and nondiabetics in personal area of stress, than the other two areas, family and occupational. No significant relationship was found between stress & coping among

diabetics and nondiabetics. Significant difference were not found between diabetics and nondiabetics in stressful life events, level of stress and coping.

Goyal (1997) had conducted a study to explore the stressful life events of middle age women, among 220 women in the age 40 to 50 years. A questionnaire consisted of 8 structured questions related to their life experiences and events and one open and question to know their casual factor responsible for their disturbances like anxiety/depression was used to collect data. The results showed that daughter's marriage, financial problems were the most important events responsible for their anxiety & depression. Clinical subjects were higher than the non clinical subjects in reporting the factors responsible for anxiety. The factors were physical health, husbands unemployment, after effect of children's marriage, insecurity, loneliness and feeling of uneasiness.

Gunthey and Jain (1998) had examined the use of drugs in relation to family environment and life stress in 20 drug users and 20 non drug users. Subjects were administered Hindi adaptation of family Environment scale and life stress scale. Drug users showed impaired interpersonal relationship. They were more aggressive; lacked social and personal competence & acceptance and were irresponsible and isolated compared to non drug users.

Panjwani *et al.*, (1999) evaluated the usefulness of simatosensory evolved potential (SEPs) in studying the response to two types of experimentally intused stressors, cold pressor text (CPT) and exercise, among 20 healthy normotensive males. CPT and exercise produced changes in the systolic, diastolic and mean arterial pressure and heart rate. The need for further research on the effect of stress has been emphasized.

Though cardiovascular disorders are concentrated in the present study, CHD was highlighted as the main psychosomatic disorder here, studies about other related disorders were also collected. High serum cholesterol levels. (Rahe *et al.*, 1971, 1974), diabetes (Saigeetha & Kalanidhi, 1995), drug addiction (Gunthey & Jain 1998), hypertension (Blumenthal *et al.*, 1993), Panjwani (1999) etc were studied like this. Some of the psychological variables like depression (Goyal 1997) and emotional distress (Srivastava and Sindhu 1989) were also studied in the backgrounds of stress and health.

### **Hostility and CHD**

Hostility is a broad concept that encompasses traits such as anger (an emotion) and cynicism and mistrust (attitudes). It is also important to note the difference between the experience of hostility, a subjective process including angry feelings or cynical thoughts and the expression of hostility, a more observable component which includes acts of verbal or physical aggression (Siegman, 1994). According to Miller et al (1996), there overt expressive aspects of hostility have generally been found to have a greater correlation with coronary heart disease.

A research team under the leadership of Dr. Carlos Iribarren, studied 374 women and men, who were 18 to 30 years old in 1985, by measuring hostility. The researchers found that those subjects who had hostility scores above the median had about 2.5 times the risk of having coronary artery calcification, than those with scores below the median. Study had adjusted other contributing factors to hardening of arteries like smoking, diet and exercise. Electron beam

tomography was used to measure heart artery calcification and hardening.

Collington, *et al.*, (1986) examined the modifying effects of suppressed anger on the relationship between job stress and hyper tension. Results showed that individuals who are continually exposed to anger producing work conditions and who chronically suppress their anger are at increased risk of hyper tension.

Many researchers had linked various measures of hostility to the prevalence and incidence of coronary heart disease (CHD). One study done by Siegman *et al.*, (1987) aimed to determine whether some dimensions of hostility are differentially related to severity of CAD. A hostility measure that correlates with indices of neuroticism was compared with a hostility measure unrelated to neurotic tendencies. For patients 60 years and younger, results were significant, revealing that neurotic hostility was inversely associated with severity of CAD whereas non neurotic hostility scores were positively related to the extent of disease. Overall hostility scores derived from the combination of the two kinds of hostility measures were unrelated to CAD severity.

Weidner *et al.* (1989) examined the relationship of Cook Medley Hostility Score (Ho) to blood pressure and heart rate activity in 56 women and 56 men. Stress was elicited by an unsolvable anagram task that was described as easily solvable. Both men and women scoring high on Ho, had greater BP responses to the task. Those scoring high on the Ho, who reported more anger, was not associated with BP reactivity. Results concluded that situations evoking suspiciousness and mistrust rather than anger may be necessary to elicit increased blood pressure reactivity among high Ho subjects.

In the study conducted by Helmer *et al.*, in 1991 the predictive power of hostility was tested in a study population of hospitalized 118 men and also in 40 women scheduled for coronary angiography. The association between hostility and coronary occlusion was slightly modified by age, and sex but the interaction coefficients were not significant. These results failed to confirm with some earlier reports showing a positive association between hostility and Coronary Artery Disease.

Fava *et al.*, (1992) had studied the differences in Psychological, behavioural and biochemical risk factors for Coronary Artery Disease among male managers of United States and Italy. The CAD patients were found to be high in cynicism and hostility and they had less enjoyment in leisure activities. Compared to American, Italian managers had significantly more unhealthy psychological and behavioural profile. Lower levels of biological parameters like lipoprotein A I and DHEA-S are thought to have a protective role against development of CAD.

Helmerts *et al.*, (1993) studied the relationships of hostility to extent and severity of exercise induced cardiac ischemia and daily life ischemia in 80 patients with CAD. The relationship was non-significant in the 63 male patients, but was significant among 17 women and among middle aged men less than 60 years. In addition there was a significant gender & hostility interaction, with stronger relationships with hostility evident for women. Results from these studies indicate that in patients with CAD, hostility traits are significantly correlated with extent of daily life ischemia and with severity of exercise-induced myocardial ischemia. These relationships appear to be significant among female and middle aged male patients, but may be less evident among older male patients.

Barefoot and Lipkus (1994) had used Cook-Medley hostility scale and found that hostility is related to the occurrence of CHD. In a long term study, conducted by Barefoot et al (1983) showed that hostility score can even predict the incidence of coronary disease. Another study had shown evidence that low hostility scores are associated with decreased death rates during a 20 year follow up of nearly 1900 subjects in the Western Elective Study. (Shekelle *et al*, 1983).

Barefoot *et al.* (1994) studied the association of hostility and Coronary Artery Disease among aircrew members who had been referred for coronary angiography on the basis of non-invasive tasks or risk factor status. The findings support the notion that hostility plays a role in the pathogenesis of coronary atherosclerosis and point to the potential importance of interactions between hostility and other risk factors.

Lane *et al.*, (1994) investigated to find whether relationships between consumption of caffeinated beverages and serum lipid and lipoprotein levels in middle aged men and women were modulated by levels of trait hostility. Study was conducted among 166 women and 596 men. The data included lipid panels, hostility, consumption of caffeinated beverages, and alcohol, exercise, cigarette smoking and body max indices. High caffeinated beverage intake was associated with higher low density lipoprotein cholesterol levels and a higher ratio of total to high density lipoprotein cholesterol both of which are indicative of greater coronary disease risk. The interactive effects of hostility and caffeine intake were ambiguous, although there were trends for caffeine intake to have stronger effects on low density lipoprotein and on total cholesterol in people with less hostility.

Meesters and Smulders (1994) tested the association between hostility and clinically manifest Coronary Heart Disease in Dutch men. 81 men hospitalized for a 1<sup>st</sup> documented myocardial infarction (MI) and 168 age matched neighbourhood controls completed the Cook-Medley Hostility Scale (MHS). MI subjects described themselves as exhibiting some what higher levels of hostility than controls. An interaction between hostility and age was also found. Hostility only conferred a risk for subjects under 50 years of age.

Julkunen *et al.* (1994) prospectively studies the cognitive and affective association of hostility and anger suppression by use of ultrasonographically assessed 2 year progression of carotid atherosclerosis (PCA) in a sample of 119 men of mean age 54 years. Based on measures of cynical distrust, impatience-irritability, suppressed anger, and anger control, 4 variants of the hostility by anger suppression model were tested with multiple regression analysis. Cynical distrust and anger control significantly predicted PCA. There was about a two fold accelerated PCA in the group with high cynical distrust and high anger control even after controlling for established biological risk factors and possible confounding background variables. The impact of independent variables on PCA seemed to be additive. Results suggested that the cognitive component of hostility is a more important risk factor for atherosclerosis than is the affective component.

Suls *et al.* (1995) conducted a series of meta-analyses to assess whether anger is related to essential hypertension. They also considered the relevance of the distinction between anger experience and anger expression. Anger experience was correlated with elevated blood pressure, but relationship was small and highly variable. Researchers also says that, being labelled as hypertensive may

contribute to higher anger scores, however, The review suggests lines of future research concerning associations between trait anger and blood pressure.

Helmets, *et al.*, (1995) had conducted three studies to assess whether the combined traits of hostility and defensiveness, identify a group of hostile individuals with functionally severe Coronary Artery Disease (CAD). CAD patients were administered Cook-Medley Hostility Inventory (HO) and Marcove-Crowne Social Desirability Scale. (MC) Patients were classified into 4 groups, defensive hostile (DH: high HO, High MC), low hostile (L: low HO, low MC), high hostile (HH high HO, low MC) and Defensive (DF: low HO, high MC). DH in comparison to HH, L and Def CAD patients demonstrate the greatest perfusion defects as measured by exercise thallium scintigraphy, DH patients exhibit the most frequent ischemic episodes during ambulatory electrocardiographic monitoring and in a laboratory study, DH patients exhibit the most severe mental stress-induced ischemia assessed by electrocardiography. Thus the combination of high hostility and high defensiveness were associated with more functionally severe CAD and may predispose CAD patients to a more adverse prognosis.

Williams (1994) in his presidential address of American Psychosomatic society, in Charleston, South Carolina, argued that optimal growth in understanding of how biopsyo social factors interact in the etiology and course of human disease will come only if research incorporates theories and techniques from cellular and molecular biology. The research on hostility and its health damaging effects was cited to illustrate his argument. Many studies have shown that hostility does predict increased risk of coronary disease as well as all other mortality . Other research involving cholesterol and hostility, addictive behaviour and hostility, increased eating and

hostility also had revealed the negative influence of hostility upon health.

Felsten (1995) had tested the influence of cynical hostility on affective and cardiovascular responses to provocation in 68 undergraduate male students. Subjects were divided into high and low cynical hostility groups using scores from the Cook-Medley Hostility Scale, and half of the subjects in each group were harassed during competition on a video game. High hostile subjects reported greater anger, than the low hostile subjects during the competition, independently of harassment, and harassment produced greater feelings of mistreatment independently of hostility. Harassed subjects experienced larger systolic BP responses only during an affect rating period after the competition, but the responses were not influenced by hostility. Findings provide further evidence that cynical hostility, anger, and cardiovascular reactivity are not simply nor consistently related.

A study by Gabbay et al. (1996) assessed the potency of physical and mental activities and emotions (anger and anxiety) and smoking and other substances as proximate triggers of ischemia in patients with CAD during daily life. 63 patients with CAD were studied. Results showed that Ischemia occurred most frequently during moderately intense physical and mental activities. Triggers of ischemia in patients with CAD during daily life include not only strenuous exercise but also activities involving low levels of exertion such as anger and smoking. Mental activities appear to be as potent as physical activities in triggering daily life ischemia.

In an article Kop (1997) focuses on psychological risk factors for progression of Coronary Artery Disease and its clinical manifestations. A classification of risk factors were presented like,

hostility, exhaustion, and anger. The distinctive pathophysiological mechanisms by which these psychological risk factors promote coronary disease progression and cardiac ischemia were described including hemodynamic reactivity, blood clotting, and inflammatory processes. Myocardial ischemia occurs during a wide variety of activities in patients with CAD but frequency and relative potency of physical and mental activities, smoking and use of caffeine and alcohol were triggers of ischemia during daily life have not been established.

In a study among 52 middle aged women Suarez (1998) found that hostile women experienced nearly 11 point risk in systolic blood pressure when recalling an emotional event, compared to when they read a factual report devoid of emotional content. On the other hand, low hostile women, showed only a three point risk in systolic pressure during anger recall, compared to the factual reading. Suarez also shows a similar pattern in young people aged 18 to 26. Hostile individuals, who were mildly harassed during a laboratory task produced excessive amount of stress hormones, specifically cortisol and nor epinephrine. They also showed an increase in blood pressure and heart rate. But low hostile subjects showed no such increases.

Williams et al (2000), studied nearly 13000 individuals, by measuring their anger. Each individual was classified as either having high, middle or low anger traits, with high score tending to be slightly younger males. Individuals who were the more anger prone were 2.7 times more likely to have MI than those with the lowest anger ratings.

Chipley (2000) had studied 900 couples assessing depression and three aspects of hostility: cynicism, aggressive response to

problems and negative feelings toward others. Both men and women who rated themselves as highly hostile also turned out to be depressed. Women whose husbands scored high on all three aspects of the hostility test had high rates of depression. Beverley Brummet, a research in the area of hostility, says that wives are inclined to experience a blood pressure spike during an argument. One spike was not send to cardiac arrest, but over time, it can lead to an increased risk for heart attacks.

Naura (2000) had conducted another study, focused on metabolic measures, that are known to predict cardio vascular disease, among 1081, older men. Researcher had found that men with high hostility scores were more likely to be over weight, with fat distributed abdomen, and upper body as well as insulin resistant - all factors that increase cardiovascular disease risk.

Denker *et. al.*, in 2000, proposed to examine the multi dimensionality of the construct of hostility in a sample of male coronary patients with some frequently used instruments. A four factor solution was appeared to provide the best fit, and the following were the factors isolated: anger-out, negative affect, coping and anger-in. So the researcher suggest future researches to use the multidimensional nature of hostility.

To assess their relative predictive utility, McDermott, *et al.*, (2001) had conducted a multi measure study among 97 men out patients. Questionnaires measured anger expression, anger experience, cynical hostility, Ho Hostility, neurotic hostility, recent anent and suspiciousness . The pre eminent anger-hostility correlate of CAD was found to be expressed anger, with year as a smoker, and age also being independently related to disease severity.

Using a sample of 774 older white men (average age was 60) researchers, Niaura and colleagues in the year 2002 sought to determine whether hostility was an independent contributing factor in CHD development. The study lasted for a three year period and found that hostility may predict heart disease more than traditional coronary heart disease risk factors like cholesterol, cigarette smoking and body weight, independent of the effects of fasting insulin, body measurement index, weight hip ratio, triglyceride levels and blood pressure.

Spiro and Williams (2002) has been conducting a longitudinal study for 40 years, among 800 men with an average age of 60 years. The study, at present, reported that hostility levels may be the biggest prediction of heart disease than high cholesterol, high blood pressure, smoking and over weight.

Smith (2003) had reported that in a study by Warner it was proved that young adults with impatient and hostile attitudes have a higher risk of developing high blood pressure when they get older. More than 43 million American adults suffer from high blood pressure, defined as having a systolic equal or greater than 140 mm Hg or diastolic pressure equal or greater than 90 mm Hg. High blood pressure is a well known risk factor for heart disease (Warner, 2003).

In an attempt to clarify the effect of psychological factors like type A behaviour with both high blood pressure and heart problems, researchers at North Western University, in Chicago, surveyed a group of over 3000 black and white young adults as part of the Coronary Artery Risk Development in young adults study. They found that those who scored high on assessments of hostility and impatience were more likely to develop high blood pressure 15 years later. But there was no obvious link between striving and

competitiveness - the other main components of type A behaviour - and high blood pressure. This was reported by Aldridge (2003).

Stoney and Engebreston (2004) had studied 33 women and 31 men, all healthy and none taking medication, measuring their hostility and anger expression. Then drew blood samples and measured homocysteine concentration. Homocysteine is a dietary by product of animal protein. Men and women with higher levels of hostility, also showed higher levels of homocysteine. Normally homocysteine is broken down in the blood stream by folic acid and B vitamins. Researchers believe elevated levels of homocysteine causes damage to the cells lining the walls of arteries, which contributes to the development of plaque. And also men had higher levels of homocysteine than did women reflecting gender differences in hostility and anger expression.

In a previous study Stoney had found that psychological stress can temporarily increase homocysteine. Because people high in hostility are known to report more life stress, so their homocysteine concentration are elevated.

A new study by Engebretson (2004) had found that people who show a high level of a particular kind of hostility, called aggression responding - may be at higher risk than others for developing heart disease. The study involved 39 middle aged men and women with no history of heart disease, who were undergoing an initial evaluation for coronary problems. Their hostility, including anger and cynicism was assessed. Moreover TMT was conducted. Only aggressive responding was found to be related to exercise induced ischemia. In a separate, but related analysis Engebretson and his colleagues had found that cynical hostility but predicted those with infarcts.

Eaker et al (2004) could not find association between anger, hostility and women's role of dying of developing heart disease on atrial fibrillation. But Eaker said, "women develop heart disease later than men and the population under the study was fairly young, with a few instances of atrial fibrillation in women during follow up period. Rather than concentrating on Type A behaviour as a risk factor, it is probably more fruitful to start thinking about anger and hostility in men".

Eaker *et al* (2004) had analysed data on 1796 men and 1913 women in the Framingham Heart study which began in 1948 and had found that the incidence of atrial fibrillation, the dangerous heart beat abnormality was 30 percent greater in men with high hostility scores. The death rate for these men during the study was 20 percent higher than for calmer men. By contrast, no increased risk was found for men who rated high on time urgency.

In a report published in the *Annals of Behavioural Medicine*, on 29<sup>th</sup> October 1998, researchers of Duke University Medical Centre was reported that, they found women, those who express their hostility either verbally or physically, are more likely to have higher levels of cholesterol but those who have hostility and do not express it outwardly - have lower levels of cholesterol. The study suggests that the expression of anger places one at a greater risk than the experience of it. Researchers also noted that hostile people often behaved in ways that further increased risk factors of heart disease and through the study focussed on young women, they believe that the same links hold true for old women as well as for the general population.

Many researchers identified hostility as the major psychological risk factor which is the most harmful component of

personality, as it leads to many disorder, especially cardiac disorders. It is said to be associated with hypertension (Collington *et al.*, (1986); Weidener *et al* (1989) , atherosclerosis (Julkmen *et al*, (1994) etc. William (1994) presented a bundle of such kind of American Psychosomatic Society. Kop (1991), Gabhay *et al.*, (1986), Helmess *et al.*, (1995) Mc Dermott *et al.*, etc. view this as multidimensional variable, so that more detailed research in this area is invited from the health researchers. Feltrten (1995) had conducted studies in youngsters and says that hostility has a very long lasting effect up on health. Barefoot *et al.*, (1994), Lane *et al.*, (1994) , Meerters and Smulders (1994), Siegman *et al.* (1987)etc. has studied hostility relation to CHD, Recent researchers of this year, namely stoney, Engehreston, Eaker, etc. studied about that cholesterol changes in the body which leads to heart disease due to hostility. Hostility is thought to be the predictor of CHD, Smith (2003), Warner (2003), Aldidge (2003) Niama in the year 2002, Williams *et al* (2000) Srazez (1998), Dankeer *et al.* (2000), Sulsc *et al.*, (1995), Siegman (1994), Miller *et al* (1996). Barefoot and Lipkus (1994), Spiro and William (2002) etc. had also found that hostility leads to some responses which are harmful to heart functioning.

### **HOSTILITY AND OTHER PSYCHOSOMATIC DISORDER**

As cited by Alexander and Flagg (1965) Alexander in a study found that characteristic for hypertensive patient is his inability to relieve freely, accept the passive dependent attitude and express his hostile impulses, chronic, inhibited, aggressive hostile impulses which always appear in connection with anxiety have a specific influence upon the fluctuations of blood pressure.

Jammer *et al.* (1993) examined the role of personality factors in differences between 3 methods of assessing blood pressure in 45

patients with mild hypertension. Significant differences were obtained in systolic and diastolic BP as a function of method of assessment. These differences in both systolic and diastolic BP were associated with individual differences in the total score and in scores on several subscales of the Buss-Durkee Hostility-Guilt Inventory (assault, resentment, guilt) but not in anxiety, depression or other characteristics.

Wade, Witham and Abramowitz (1994) had hypothesized that the aggressive responding and hostile affect sub scales of the MMPI will differentiate between men and women since there are scales where sex differences have been most consistently found. 35 male and 55 female college students (sample 1) and 53 male and 55 female college students (sample 2) were investigated using logistic regression techniques. As predicted women in sample 1 were less hostile than men, on these scales at all levels. However women in sample 2, were less hostile only in the aggressive responding scale.

Vandervoort (1995) assessed the relationship of physical health of depression, anxiety and hostility in a multicultural population of 106 college students (aged 18-50 years). When demographic and health risk factors (i.e., age, sex, body mass, smoking, alcohol, salt, caffeine and exercise) were controlled, hostility, depression and anxiety were related to higher reported incidences of physical symptoms and somatic illness. Depression and hostility had the strongest relationships with physical health. Results suggest that it may be premature to focus attention on hostility in research on the personality-illness relationship. The health behaviour model of the relationship between personality and disease appears to be inadequate, since negative affect was associated with illness even when controlling for health risk factors.

Steegmans et al (2000) had tried to see whether there is a positive relationship between low cholesterol levels and death due to violent causes, possibly mediated by depressive symptoms, aggression, hostility, through a long term study and found that men with chronically low cholesterol levels showed a consistently higher risk of having depressive symptoms, than the reference group. No difference in anger and hostility were observed between the two groups.

Hostility has been studied in relation to psychosomatic disorders like high cholesterol (Steegmans *et al.*, (2000) hypertension (Alexander and Flagg etc. Jammer *et al.*, 1993), depression (Vandervoort (1995).

### **Stress, Personality and CHD**

Frankenhaeuser, Lundberg and Forsman (1980) compared healthy subjects classified as type A and type B persons on the basis of questionnaire measuring coronary prone behaviour in terms of psychophysiological arousal during periods of inactivity and strenuous mental work. Type As showed a tendency to be equally aroused or even more aroused during inactivity. Similarly self reports showed that type As feel more distressed than type Bs during inactivity.

Byrne (1987) revealed the role of environmental stress and type A behaviour pattern in the development and precipitation of coronary heart . Davies (1996) says stress and certain kinds of personality traits are guide factors of Coronary Artery Disease.

For at least the last 200 years it has been suspected that somatic manifestations of psychological distress play a role, in the medical recognition and treatment of CAD. The cardiovascular

system is intricately linked to the experience of emotion, and these links may explain how and when neuroticism can cloud the diagnosis of cardiovascular disease. Costa (1987) had conducted a study in this regard which revealed that neuroticism was related to somatic complaints, including angina but not etiologically related to CAD.

Khorana (1989) had conducted a study among 60 ischaemic heart disease (IHD) patients and to controls (Comparable to IHD group in terms of age, sex and education). Psychological assessment of each subject was done. Results revealed that 65% cases had severe psychological stress like financial pressures, deaths, and family problem, before the onset of illness. The stress group had greater representation of high socio-economic status, type A behaviour and other psycho somatic dis

Shekelle, Vernon and Ostefeld (1990) studied the relationship of personality and coronary disease and found that somatic complaints are related to increased susceptibility to acute emotional stressors that can trigger arrhythmias in ischemic myocardium.

Martin and Lee (1992) in their studies explored *life events, personality factors*, subjective perception and coping relations in 77 *myocardial infarction* patients. They found that anxiety and experience with stressful events were salient predictors of myocardial interaction.

Bansal (1996) examined the difference between Type A (Stress Producing) behaviour of Coronary Heart Disease (CHD) and non CHD patients. A group 80 CHD (40 males and 40 females) and another group of 80 non CHD patients (40 males and 40 females) aged between 45 to 50 years were administered a modified version of Friedman and Rosenman's scale to measure Type A behaviour.

Results revealed. (a) significant difference in the stress producing behaviour (Type A) of both groups. (b) no sex differences in stress producing behaviour and. (c) no interaction between sex and CHD.

Dhamija and Bhattacharya (1996) examined the psycho social correlates of coronary heart disease (CHD) patients. A groups 27 CHD patients and 25 normal controls aged 40-55 years was administered Sinha Anxiety Scale, the Maudsley Personality Inventory (MPI) measuring neuroticism and extraversion and a questionnaire developed to assess habits like smoking, drinking and sleeping. Results revealed that anxiety, extraversion and neuroticism were significantly related to CHD. Health awareness was significantly higher among CHD patients however, CHD had negative effects on the working enthusiasm of patients after recovery from heart attack order.

Some of the personality characteristics will make one experience more stress and that also were studied in connection with heart disease. Franken haeurer et al. (1980), Bamal (1996), Byrne (1987), Dhamija and Bhattacharya (1996) etc. had explored type of personality in relation to stress and cardiac health Kohorana (1989), Costa (1987) Shekelle *et al.* (1990) Martin and Lec (1992), etc had reported about the severe stressful experience patients felt before the on set of the disorders.

### **Personality, Hostility and CHD**

Williams (1987) reviewed evidences which support that global type A construct is predictive of increased risk of coronary events. He had conducted a population study and says that the high risk group, including patients undergoing coronary angiography, the evidence with respect to global type A is much less clear. This stem from the fact that most of those studies, although generally failing to

find statistically significant relationship between CAD and type A behaviour, were flawed in a number of ways including inadequate statistical power of results, use of less than adequate instruments, failure to take an apparent interaction between type A behaviour and age into account. Identifying measures more powerful than global type A is needed in this field, for further research. Extensive evidence suggests that such measures may be found in the domain of hostility and anger. Preliminary evidence suggests that hostility or anger characteristics may account for increased coronary risk associated with global type A behaviour.

Many researchers suggest that the most potent feature of the Type A behaviour pattern for prospectively predicting cardiac disease is aggravation, irritation, anger and impatience (AIAI). One study done by Ketterer (1990) examines psychometric properties of a new AIAI measure and its relationship to the severity of CAD. Subjects included 61 males undergoing coronary angiography. Comparisons were made of mean across groupings, defined by number of vessels occluded. The results showed that the normal or suitability occluded coronary angiographic group had high levels of depression and anxiety. Higher levels of AIAI were observed in patients with multivessel CAD compared to those with single vessel disease.

Ketterer, Lovallo and Lumley (1993) had examined the association of patient and spouse reported aggravation, irritation, anger and impatience (AIAI) as 4 measures of type A behaviour hostility. 175 men undergoing coronary angiography and 56 years age were studied for this purpose with a socio-economically matched healthy controls. In the results all the 4 measures were significantly associated with both patient and spouse reported chronicity of AIAI.

Deary *et al.*, (1994) investigated the association between peripheral arterial disease and (1) Type A behaviour patterns and (2) negative personality characteristics including hostility. The study was conducted among 1592 men and women of age 55-74 years. They completed measures of peripheral arterial disease, intropunitiveness, extrapunitiveness and dominance (including hostility acts). The Bortner self administered questionnaire was used to determine Type A/B personality. Hostile acts increased with severity of peripheral arterial disease, particularly among men. Dominance was also related to asymptomatic peripheral arterial disease in subjects who had neither intermittent claudication, nor angina, contrary to expectation, Type A personality behaviours cores were found decreased with the severity of peripheral arterial disease.

Anderson and Lawler (1995) evaluated the affective experience of hostility, through an anger recall interview, and related qualities of that experience to one potential mechanism of cardiovascular risk, cardiovascular reactivity. 58 women, classified by structured interview as Type A or Type B participated in an anger recall interview while their heart rate (HR) and blood pressure were monitored. Type A subjects manifested greater systolic reactivity when their anger was in response to frustration of autonomy needs, while Type B subjects exhibited greater HR reactivity in response to frustration of affiliation needs. All subjects who suppressed anger expression experienced higher pressure responses than subjects who expressed anger assertively.

In one study Fukunishi, *et al.*, (1995) examined the influence of narcissism and social desirability on hostility in 215 Japanese college students and 30 Japanese patients (aged 35-78 years) with myocardial infarction (MI) subjects were administered the Cook

Medley Hostility Scale, Narcissistic Personality Inventory, Marlowe-Crowne Social Desirability Scale and Jenkins Activity Survey. Results indicate that (1) MI patients had stronger cynical hostility and lower social desirability than college students, (2) hostility was related to Narcissism before and after controlling for social desirability in both MI patients and college students, and (3) these tendencies were stronger in MI patients than in college students.

High levels of hostility is associated with adverse health outcomes. Haney *et al.*, (1996) examined the characteristics interpersonal personality assessment technique (which measures hostility form verbal behaviour during a standardized interview) in 129 male coronary patients. Hostility was found to be highly connected with CAD severity, even after controlling traditional risk factors.

Singh and Singh (1996) had assessed the relationship between hostility scores and personality characteristics among post graduate students and the results indicated that males and females differ qualitatively as well as quantitatively on measures of personality characteristics further the results supported the conclusion that hostility was a multidimensional construct, a conception at variance with much current thinking.

Dudek *et al.*, published a study in 2001 about personality pattern in Coronary Artery Disease, in a polish the journal in which relation of personality pattern and type A behaviour to the risk and prognosis of CAD was described. The particular interest of researches was directed toward hostility, which correlated with the course of Coronary Artery Disease. Finally, therapeutical implications, deriving from the holistic approach to cardiological patients were proposed.

Yan (2003) looked at how each type A factors were linked to long term risk of high blood pressure in a group of more than 3000 adults aged 18 to 30 years. The study followed the participants for 15 years. It had found that higher the person scored on tests of impatience and hostility during young adulthood, the more likely they were to develop high blood pressure later in life - regardless of other risk factors like age, sex, race, education, body man index - weight in relation to height, physical activity level or blood pressure at the start of the study.

The variables, personality and hostility were considered together in some studies as follows. The researchers include Williams (1987), Duke *et al.*, (2001), Anderson and Lawler (1995), Deary *et al* (1994), Ketteret *et al.*, (1993), Ketterer (1990), Fukmishi *et al.* (1995), Yan (2003) etc.

### **Stress and Hostility**

Johnson *et al.*, (1992) in one study examined the comparative pexlancy of several psychological stressors and exercise in eliciting myocardial ischemia as measured by left ventricular (LV) ejection fraction (EF) changes using radionuclide ventriculography. 27 subjects underwent both exercise (bicycle) and psychological stressors like mental arithmetic , recall of an incident that elicited anger etc, during which EF, blood pressure & heart rate were measured. 18 subject had I-vessel CAD and 9 were served as healthy control subjects. In the result it was seen that anger recall reduced EF more than exercise and the other psychological stressors. The difference in EF change between patients with CAD and healthy control subjects was significant for both anger and exercise. In the patients with CAD anger appeared to be a particularly potent psychological stressor.

As the contribution of psychological factors to mental stress provoked silent myocardial ischemia has not been explored Burg, *et al.*, (1993) had investigated among 30 patients with chronic stable Coronary Artery Disease. The study says that a psychological profile consistent with emotional reactivity to social interaction and mental provocation with anger as the predominant affective state.

Mukhopadhyaya & Bose (1995) compared the stressful life events and stress generated anxiety and hostility levels in 30 adult male smokers and 30 non smokers (aged 20-50 years). Results revealed that smokers obtained higher stress scores than non smokers when events were reported with in 1 month period and between 1-6 months period. Longer experience of occurrence of events did not differentiate between the groups. Smokers who experienced recent stresses were significantly lower on hostility and anxiety than non smokers.

Some researchers like Krantz, Kop *et al* (1996), had studied the effects of acute stressors on cardiac events in a laboratory setting. Using modelled forms of stress, and sensitive imaging techniques, researchers were able to induce myocardial ischemia in 30 percent to 60 percent of patients with CAD. Rozanski *et al* (1988) had also conducted similar studies, where as Gabbay *et al* (1996), Gullette *et al* (1997) etc. had conducted studies during daily activities using ambulatory monitoring devices.

Suarez (1998) had reported that emotional stress may not be potentially harmful to everyone, only those who are already prone to feelings of anger and irritation. Though talking about one's feelings makes feel better, but it was not be time in all cases, especially if the stressful situation is unresolved or lingering

Maandiong & Bishop (1999) examined the role of anger expression in the experience of stress, coping with stress and psychological and physical well being, among 268 people, which indicated that anger expression was significantly related, to reported stress mechanisms for coping with stress and psychological well being. Higher levels of anger expression were associated with higher levels of stress, as well as one of active coping. Higher levels of anger expression showed a direct negative relationship with psychological well being as did higher levels of stress. In contrast, the only significant predictor of physical well being was reported stress, with higher levels of stress related to lower levels of physical well being.

O' Malley et al. (2001) studied the relation between multiple psychological variables and sub clinical CAD to assess the possible role of such variables in atherogenesis. In the study 630 Army persons were assessed for depression, anxiety, somatization, hostility and stress. It was concluded that, depression, anxiety, hostility and stress are not related to coronary artery calcification and that somatization is associated with the absence of calcification.

Stress and hostility were studied by researchers like Burg *et al.*, (1993), Johnson *et al.* (1992) Mandiong and Bishop (1999) Mukhopadhy and Bore (1995) O'Malley *et al.*, (2001) Suarez (1998), Karantz *et al.*, (1996) etc. Both of these factors are found to be unhealthy by these researchers as most of these studies conducted in the area of health.

### **Personality Hostility and Stress**

Mordkoff and Rand (1968) had suggested that the coronary artery disease patients certain personality characteristics are major casual factors of the disorders and the intervention programmes

should concentrate on that so as to help the patients to adapt to the disorder.

Specific type A components such as hostility as well as mode of anger expression (anger-in) have been related to coronary disease. Stress, type A components and psychophysiologic reactivity are promising candidates for research in clinical intervention (Krantz, 1998).

A few researchers like Mardkoff and Rand (1968) and Kantz et al (1998) had explored the personality, stress and hostility together in the CAD patients.

### **Intervention Related Studies**

Niven (1976) says that a multi-disciplinary approach including evaluation and management of patients' psychological factors should be part of treatment of all patients with CHD. Ischemic Heart Disease often requires both patient and family to make difficult changes in personality and life style. As soon as the physiologic stress begins to subside, the physician should be to provide sympathetic, specific guidelines toward acceptance of the disease and accommodation to its limits.

Oldenburg, *et al.*, (1985) used stress management intervention techniques among cardiac victims, using information about conditions and treatment, relaxation training, counselling etc. The experimental group showed better psychosocial adjustment during the next year than those who received standard case.

Friedman *et al.*, (1986), assigned over 1000 patients to one of the three groups, a cardiology counselling treatment group, a combined cardiology counselling and type A behaviour modification group or a non-treatment control group. After 4.5 years, the final

results showed a larger decrease in global type A behaviours as well as in its components in the type A counselling group. Rate of recurrent MI was significantly lower in the type A counselling group than in either the cardiology counselling or control groups. Mendes Le Leon and Kaplan (1991) attribute this reduced recurrence to multiple causes, including increased number of treatment contacts, and increased social support.

Ischemic Heart Disease Life Stress Monitoring Program had studied post MI patients. 229 patients were assigned to a treatment group which included life stress monitoring and intervention and another 224 patients to a control group, which received only routine medical follow up care. Results showed that during the year of project there was a 50 percent reduction in cardiac deaths, a reduction that continued for six months beyond the project's completion. Over the seven years following the study, there were fewer MI resources among patients in the treatment group (Frasure Smith and Prince, 1989). This is partly attributed to the emotional and social support given to the patients to decrease stress.

Dean Ornish and colleagues (1990) had randomly selected volunteered cardiac patients for either standard medical care or a multi component intervention. The program had the people, eat vegetarian diet, eliminate caffeine, and restrict alcohol consumption, stop smoking, get moderate exercise regularly, meet regularly as support groups and use stress management techniques including relaxation and meditation. Medical assessments were made at the start and end of a year. Comparisons of the two groups showed that the atherosclerosis and reports to chest pain worsened for the subjects who received standard medical care, but improved for those in the intervention program. Although the results do not indicate which features of the program worked, they show that changes in the

life style can unlog arteries. Others like Gould et al (1995), Haskell et al (1994), Superko and Krauss (1994) have not confirmed these findings but found that intensive reduction of life style risk factors reduces subsequent cardiac problems and hospitalisation.

Kishida *et al.* (1990) had studied 100 myocardial infarction patients and they were divided into 3 groups. Two of them received behavioural counselling and psycho therapy each. The results reveal that a combination of Holter monitoring and psychological testing is clinically useful for the development of therapeutic strategies for coronary Artery Disease.

Similar study conducted later reported that reduced cardiac recurrences, in type A counselling group can be attributed to multiple causes including increased number of treatment contacts and increased social support (Mender de Leon, Powell and Kaplan, 1991).

A study by Ockene *et al.*, (1992) provided a cognitive behavioural programme to help coronary patients stop smoking. The program used manuals, tape recordings and in persons and telephone counselling methods whereas control group received only advice to quit. Over the next 12 months program was found to be effective in patients with severe heart problems where as it was not effective among people with less severe coronary damage, perhaps they didn't feel strongly threatened (Ockene *et al.*, 1992).

Agrawal and Dalal (1993) examined the effect of different beliefs about the world on the recovery of myocardial infraction noting the difference between world, casual and recovery beliefs. The sample (70 males) was interviewed 4-5 days after the 1<sup>st</sup> heart attack and again 1 month after heart attack. Attribution of causality of God was negatively correlated with medical recovery, perceived recovery

and mood state, 1 month after the heart attack. This trend was reversed for attribution of causality to self.

In an intervention study, Bundy et al (1994) had found stress management reduced the daily number of angina pectoris attacks by nearly 40 percent compared against attacks of clients who received standard care.

The American Heart Association's recommendation for comprehensive risk reduction involve complete cessation of smoking, lipid management through drug treatment and a diet low in saturated fats, physical activity a week, weight management, blood pressure control through diet, reduced alcohol intake, sodium restriction and oestrogen replacement therapy for post menopause at women (Smith et al, 1995).

In a study conducted by Broota, Varma & Singh (1995), they had compared the efficacy of 3 different relaxation technique, namely Broota Relaxation Technique, Jacobson's Progressive Relaxation Technique and *Savasana*, in reducing the symptoms of hypertension, among 40 patients. Results revealed, (a) all the three relaxation therapies reduced symptom of hyper tension. (b) all the therapies produced different forms of relaxation effect on hypertension and (c) *savasana* was the most effective therapy in reducing symptoms of hyper tension.

Konstan, *et al.*, (1995) examined the effect of short term intervention group in 8 cardiac transplantation recipients and their 3 family members. Subjects participated in 7, 90 minutes, weekly sessions led by a psychologist and a cardiac nurse practitioner. Affective state was assessed by a profile of Mood states (POMS) administered before and immediately after the intervention. Levels of anger hostility, as measured by POMS, were high pre-intervention

and were reduced following the group session. Findings indicate the benefits of intervention program.

A number of intervention studies have attempted to modify type A behaviour in order to reduce CHD risk. If the subjects are motivated to change, it can be decreased easily. (Allan and Scheidt, 1996).

Dean Ornish (1996) has proved that the heart diseases can be reversed and the bypass surgeries may be avoided when patients follow the yogic life style. Improvement in cardiovascular efficiency due to one month yoga training was long back reported by Ganguly et al (1974).

Dath *et al.* (1997) studied the efficacy of relaxation and behavioural counselling in reducing anxiety related symptoms in coronary heart disease cases. Therapy continued with 30 days, in a single case study designs, with pre post 2 years history of CHD in the age group of 35 to 45 years. Comparison of pre post assessments revealed marked reduction in clinical symptoms and anxiety among clients. The therapy also enhanced, patients well being.

George *et al.*, (1998) attempted to formulate and find out the effectiveness of a cognitive, behavioural intervention program in (a) modifying type A behaviour pattern (b) reducing anxiety and (c) changing maladaptive assumption in a subject who had CHD. A single case design with pre-mid and post treatment assessment was used. The cognitive behavioural intervention program developed based on the assessment and functional analysis, consisted of (a) Coronary counselling, (b) Education about type A behaviour patterns. (c) Stress inoculation training and (d) behavioural counseling to significant others. Findings, illustrates the

effectiveness of the program in the modification of type A behaviour pattern, anxiety, anger and dysfunctional assumption. The study also throws light on the need of similar studies in large sample, using long term follow up so that efficacy of intervention programs also can be assessed. Such intervention program will have potential in prevention of CHD and in turn, decreasing enormous costs of expensive pharmacological and surgical intervention while dealing with CHD.

Dharmapalan (1998) had conducted a preliminary study in 10 heart patients who vary in internity of the cardinal signs and symptoms. In a 3 months long study, 3 different kinds of Ayurvedic medicines were provided to study the results of management of symptoms. The study revealed a considerable improvement. The work was in progress and the more quantitative conclusions will be later found out.

Latha (1998) had examined the efficacy of self monitoring in changing dietary habits, among 18 subjects for a period of 82 weeks. Results indicated that the mean caloric intake of the comparison group during the intervention period was significantly higher than that of the self monitoring group. The self monitored group was able to maintain a lower level of caloric intake even during the follow up phases.

Girden, *et al.*, (1999) studied the effect of hostility reduction intervention on patients with CHD. Twenty two highly hostile male patients were randomly assigned to either a hostility intervention group or an information control group. Those in the intervention group were observed at immediate and two month follow up to be less hostile than controls, as assessed using self reports and structured interviews and to have significantly lower diastolic blood

pressure. Further investigations promise to provide insight into the role of hostility reduction to cardiovascular disease.

Sharma (1999) had conducted a study about environmental stressors and the consequent hazards in Indian set-up. She had put forward an intervention program which can be implemented in personal, Institutional and community levels. In personal level, the investigator suggests programmes like counselling, meditation, relaxation etc and in the community level the suggested strategies are group counselling awareness programmes etc. In the institution level she suggested some strategies like asking for change in regulation wherever required, approaching courts through 'public interest' litigation if required etc.

Yardley et al. (2001) conducted a longitudinal study and described factors, influencing perception of non pharmacological treatment. The model highlights the potential for reciprocal interaction between abstract beliefs relevant to illness and treatment and concrete experiences of therapy and for interaction between perceptions of symptom change and of therapist competence.

There is a pressing need for practical intervention to support self management of chronic illness that can be integrated with primary care and that take into account the patients' solid environment. About this, Riely *et al.*, (2001) conducted a pilot study with low income clients of community health centre. 20 patients having one chronic illness, randomised to immediate versus delayed treatment conditions. Significant improvement in use of community resources minutes of physical activity and medication adherence were obtained compared to control. Integrating brief self management counselling with social environment support appeared effective

although much more can be done to health link counselling to primary care practice.

Rejeski *et al.* (2001) examined whether change in satisfaction with physical function, satisfaction with physical appearance and self efficacy mediate the effects that increased physical activity has on change in subjective well being. Study was conducted among 471 men and 383 women who took part in the Activity Counselling Trial and assigned three different treatments. Results revealed that, irrespective of treatment method, change in physical activity was related to change in sense of well being and to change in all mediators of interest.

Traditional health behaviour model comprise only person centered motivational components, however, factors such as social responsibility, perceived prevalence of rates of illness, attribution of control to societal agencies and the motivation to engage one self for public health concerns are not unrelated individual health protection. On the basis of that Kals and Montada (2001) proposed an alternative model which combines traditional self centered and social variables and it was empirically confirmed, in a study conducted among 558 cancer patients. The motivational predictors of both categories of activities had significant overlap.

Psychosocial list factors such as depression, hostility and social isolation are substantially more prevalent in patients with CAD. These risk factors were demonstrated by a study conducted by Janazzi and Pasternack (2002) as these factors individually or together increased recurrent ischemic events as well as cardiac death when compared to unaffected CAD patients. Nonpharmacologic Therapies for psychosocial risk factors include, psychotherapy, stress reduction techniques and exercise therapy.

Reduction in social isolation also reduce mortality rate. In selected patients improvement of quality of life was proved to be effective in decreasing Cardiac risk.

Baby (2004) had reported that in the 24 studies conducted by them, providing a raw diet, to the patients having different psychophysiological disorders, for 41 days, the symptoms could be cured successfully. Yogasana, individual and group psychotherapy, lectures about natural diet and holistic health, prolonged discussions, community singing, *panchabhoota upasana* etc. were the other activities provided along with uncooked diet.

As the victimisation of psychological factors increases, the researchers proper and experiment on different methods of interventions. Natural method of identifying and reducing stressors are highlighted by Agarwal (1994). Sharma (1999) had put forwarded an intervention which can be implemented in the personal, institutional and community levels. Non pharmacological psychological stress reduction techniques were found to be effective in cardiac responses by parternack and Janzzi (2002), Monta (2001), vinetc *et al.*, (1997), etc Yardley (2001), conducted a long term study in this area. Counselling was given much importance by Riely et al (2001) and Rejeskei et al (2001). Dharmpalan (1998) had tied a different kind of intervention using Ayurvedic medium. George *et al.*, (1998) had found out a cognitive behavioural program as effective where as Latha ( 1998) had examined the effectiveness of self monitoring and change in dilatory habits. Dath *et al.*, (1997) had used relaxation and behavioural counselling to reduce anxiety related symptoms in Coronary Heart Disease. Which comparing there different types of relaxation techniques, Broota *et al* (1995) had found that *savarana* was the most effective one. Multidisciplinary approaches were used as

intervention by Agarawal and Dalal (1993), Kishida *et al.*, (1990), Ninen (1976), Baby (2004), Ornish (1996) had conducted out standing studies, even to recent blockages in the arteries and to avoid by pass surgeries. His intervention include a package, like a yogic life style. Some researchers like Girden *et al.*, (1999), had concentrated in hostility reduction where as other like Frasure – Smith and Prince (1989) tied to effectively cope with stressors and Smith *et al* (1995) tied for life style correlation through this methods of intervention. Effective adjustment (Ockene *et al.* 1992), information relaxation and counselling (Oldenburg *et al.*, 1985), type A behaviour modification (Allan and Scheidt 1996), stress management (Bundy *et al.* 1994), cardiology counselling (Friedman *et al.* 1986) etc. were the other intervention techniques used in the cardiac patients by different researchers.

### **Yoga – as a therapeutic Intervention**

Gore (2002) has been found that Yoga has three main approaches such as (i) promotion and maintenance of health, (ii) prevention of disease and (iii) emphasis on holistic mode of healing.

Maximum therapeutical investigations have been done in the last three to four decades. Dately (1969) for the first time found the relaxative posture - *Savasana* most effective for the management of hypertension. Later on Patel *et al* (1985) and Udupa (1980) not only confirmed, these results, but further reported a reduction in catacholamine level after the yogic therapy. Tulpule (1997) showed that a set of relaxative hathayogic postures cold prevent myocardial infarction. Bera *et al* (1998) has reported that *Savasana* is more effective in recovering the physiological stress than resting in chair or in supine position. Neuromuscular efficiency has been found at

optimum level in core of Yoga practitioners in normal as well as stressful condition (Gore, 1988).

Yoga is the most important contribution by Indian culture to mankind. The supreme role played by Yoga practices in the maintenance of mental health and efficiency has been known to mankind for many centuries. The relationship of yoga and mental health can be viewed from three points of view. One is the aspiration to transcend the bonds of its environment and to rise to great heights of bliss and joy, unalloyed by fear, sorrow etc. The second and the most common aim is to seek solace from travails of everyday life, with all its burdens and tensions. The third is in the treatment of and prevention from illness (Ramamurthi, 1989).

Meti (1990) studied systolic time intervals to assess the left ventricular performance of the heart in 5 advanced practitioners during the practice of five *yogasanas*, consisting of forward and backward bending, chest stretching, shoulder standing and head standing postures. Ear densitogram, electro cardiogram and phonocardiogram were recorded with a four channel recorder. Systolic time intervals were calculated and analysed before, during the maintenance and after each *asana*. The study revealed that there were no significant changes in ventricular functions during the practice of the above *yogasanas*.

Sachdeva (1994) studied 26 hypertensive and 20 normotensive subjects and provided 12 weeks yogic life style. (Meditation, breathing techniques, postures, a low fat, nonspicy, vegetarian diet and behavioural modification). Subjects reported a progressive reduction in systolic and diastolic BP, body weight, serum cholesterol and triglyceride levels.

Schmidt *et al.* (1994) studied risk factor changes in 106 healthy adults who attended a 3 months yoga and meditation course in Sweden, who retained from smoking, caffeine and alcohol and who kept a vegetarian diet. Subjects were examined for diet, body mass index (BMI), serum lipid and lipoprotein levels, blood pressure, fibrinogen, and leukocyte count, pre and post program. The course diet has less fat, less saturated fat, less cholesterol and more dietary fibre than habitual diet. Mean blood pressure, fibrinogen, and BMI significantly decreased in subjects during the course. In men, the mean serum total cholesterol (TC), LDL, VLDL, TC/HDL ratio, triglycerides and leukocyte count significantly decreased. These with initial high risk factor levels, had the largest reduction. In women, the beneficial effect on lipid and lipoprotein levels were restricted to subjects with initial TC above 200 mg/dl.

Vasudevan *et al.* (1994) studied a group of 7 subjects with tension head ache who underwent 30 sessions of yogic meditation. Pre, mid and post assessments were made using the psychophysiological and psycho behavioural measures. Findings revealed that there was no statistically significant reduction in the frontalis muscle tension and skin conductance, although clinically there was a decline. Reduction in pain perception was statistically significant. Yogic meditation was effective in reducing tension head ache.

Bhusan (1994) explains desire (*asakti*) as unsophisticated craving and its different forms of manifestation in social life as the cause of unhappiness and distress, and highlights the importance of yogic practices for its refinement, (*anasakti*) to attain the best of all dormant faculties sound health and bliss. While discussing 8 distinct phases of human development according to Patanjali, a renowned commentator of yoga in ancient India, the author emphasises the importance of developing a comprehensive

indigenous model of mental health and an inventory to measure asakti anasakti dimension of human personality.

Venkatesh, *et al.*, (1994) had studied a sample of 40 adult practitioners of yoga and 40 adult controls who had no interest in yoga. Findings indicate (a) male yoga and non yoga practitioners differed significantly on attitude toward yoga, neuroticism state and trait anxiety, and stressful life events during the past year. (b) significant differences among female practitioners and controls were found on 3 variables, attitude toward yoga, social desirability and stressful life events during past year and (c) yoga practitioners had significantly higher mean scores on yoga attitude and social desirability compared to non yoga practitioners.

Dostalek, (1994) in his paper on 'physiological bases of yoga techniques in prevention of diseases discusses possible physiological mechanisms of *hathayogic* exercises, including changes in the intensity and distribution of excitation and inhibition in the brain, habituation of the reflexogenic areas and modification of the rhythmicity of the functions. *Hatha Yoga* can be used for prevention and therapy of psychosomatic diseases, rehabilitation and research of physiological regulations It includes psycho hygienic and auto psycho therapeutic approaches and properly practiced, poses no risk.

Radha Krishnan (1995) discusses the scientific and psychological significance of Yoga as a means of attaining spiritual emancipation. Within the yogic fold, the nature and significance of raja yoga, hatha yoga, Kriyas, asanas, pranayama, bandhas and mudhras are studied. Findings from empirical studies on yoga reveal that long term practitioners of yoga have a remarkable voluntary control over their autonomic process, which helps them in

coping with psychological stress. They also describes yoga as a system of psychotherapy, and calls upon clinician to perfect yoga therapy so as to make its application universal.

Sridevi and Rao (1996) investigated the effectiveness of certain yogic practices in relieving menstrual problems. A sample of 40 female employees (20 exposed to yoga training and 20 not exposed to yoga training) was administered the Menstrual Distress Questionnaire (MDQ) to measure menstrual symptoms such as anxiety and depression. The yoga trained group obtained significantly lower scores on the schedules of MDQ compared to the group not exposed to yoga training in both premenstrual and menstrual periods.

Aminabhavi (1996) explored whether yogic training course of 3 weeks could change the attitude of 16 male and 14 females (aged 21-30 years) towards yoga and improve their mental health. The pre and post test comparison revealed that subjects developed significantly positive attitudes toward yoga after attending the course. The training course also led to highly significant improvement in the subjects' mental health.

Verma had conducted studies in 1997 to high light the contribution of certain yogic techniques or yoga practice toward mental health. The results indicated that (1) yoga practice was as effective as drug therapy in treating psychological disturbances. (2) effect of yoga practice lasted for over 1½ years with signs of continuing improvement and (3) in addition to alleviation of ill health, there was also a positive sense of well being which was not observed in drug therapy. The need of examining the role of yoga practice in the prevention of psycho somatic illness has been pointed out. (cf. Warriar,1998).

Bhusan (1997) emphasises the significance of yoga as a science of mind which provides techniques for promoting mental peace and tranquillity. The yogic model of Psychodynamic, which is based on attachment and detachment is claimed to be more comprehensive than psychoanalytic techniques of psychotherapy for managing stress, depression, and improving mental health were also suggested by Bhusan. Sachdeva (1994) had studied the effect of yogic style of living up on hypertension and was found to be very effective.

Pavlos, *et al.*, in 1998 made a study on the effect of specialized yoga courses in 55 patients having coronary arterial ailments. The treatment was for one month. The result indicated positive effect of the course in improving the quality of life of the patients. The results showed remarkable influence of yoga on eliminating and alleviating of chronic psychostresses, increasing of self control, self confidence and self discipline which help to eliminate other risk factors and to undertake responsibility for improving one's own health and the quality of living which in turn helps in preventing coronary disease. (c.f. Warrior, 1998)

Triveni, *et al.*, (1999) revealed a significantly lower level of neuroticism in yoga practitioners in comparison to non practitioners. The practitioners manifested a lower level of anxiety as well as depression.

Yoga has been used for promoting and maintenance of health, prevention of disease etc. It is used with therapeutic purpose also the therapeutic efficacy of yoga was proved by many researches. Some of them are reviewed like Patel *et al.* (1985), Tulpule (1997) Bera *et al.* (1997) etc. The researchers had conducted their studies in different patients sample, like hypertension (Sachdeva 1994),

healthy adults (Schmidt *et al* 1994) subjects with tension had ache Vasudevan *et al.*, (1994) etc. yoga's effects was found in decreasing stress and better social life (Bhusan 1994) better mental health (Amirabhavi 1996) decreasing depression and anxiety (Sudevi and Rao, 1996), Triveni *et al.*, (1999), better cardiac function and cardiac vascular responses (Schmi *et al.* 1994) etc. Yoga is studied with different therapeutic efficacy by Dostaek (1994) also.

### **Life Styles**

Rahe *et al.* (1974) gathered life changes data from 275 survivors of M1 and 22 cases of abrupt coronary death. Spouses provided life change information for all the victims. The results indicated marked elevations in the magnitude of total life changes during the 6 months prior to infarction compared to the same time interval 1 year earlier. These data generally agree with earlier studies conducted in Sweden showing an increase in total life change during the 6 months prior to infarction (Rahe & Lind, 1971).

Life long interaction between a person and his environment plays a pre-potent role in the determination of illness. Lal *et al.* (1982) evaluated life events in hypertensive patients. The hypertensives reported more life events than controls. Subjects ratings of happiness or distress invoked by their life events revealed that the hypertension had significantly greater mean distress rating and significantly more number of distressing events.

Similarities of 30 young spouse pairs in behavioural and cardiovascular responses to two experimental stress were compared to assess the importance of shared home experience in determining cardiovascular responsivity to stress. Pair members exhibited a number of behavioural similarities, some of which appeared to increase with number of years lived together. Both young and

middle aged pairs exhibited significant similarities in systolic blood pressure response to isometric handgrip. The fact that similarities were observed in young as well as middle aged spouse pair suggests that being assortative is regard to cardiovascular reactivity to stress may occur in some instances (Ditto and France 1990).

In a study conducted by Biro, among Hungarians in 1992, it was proved that people's nutrition in Hungary includes several factors which affect the incidence of cardiovascular disease unfavourably. It is obvious that besides the nutritional risk cardiovascular morbidity and mortality are also affected by several other factors among them, like inactive life style, stress situations, smoking, work rhythm, and leisure time alcohol consumption.

Though different kinds of intervention had concentrated up on different aspects of behaviour as body function, some of the researchers argues that the intervention for psychosomatic disorders should be a total change in their life style because the causal factors of those disorders be along with their life style. Biro (1992) Ditto and Frank (1990) Rahe *et al.*, (1974) Lal *et al.* (1982), Ornish (1996) etc are of such as opinion a their intervention is not limited to a single causal/risk factor.

# METHODOLOGY

Baby Shari P. A. "A psychological analysis of natural cure methods in healing heart ailments" Thesis. Department of Psychology , University of Calicut, 2004

# Chapter III

## METHODOLOGY

### Research Design

#### Phase I

- Sample
- Measures
- Test Construction
- Procedures
- Statistical Analysis

#### Phase II

- Sample
- Measures
- Experimental design
- Procedure
  - Pre Intervention Assessment
  - Intervention
  - Post Intervention Assessment
- Statistical Techniques

Method of a research work is the totality of the procedures followed by the investigator to make it scientific and valid to the extent possible. As such it is very crucial that the success of any research depends on the method adopted and the measures or techniques employed for data collection and analysis.

This chapter presents the different steps followed by the investigator in conducting the study like research design used, sample selection measures/techniques to collect data, procedure of data collection, statistical analysis etc.

### **Research Design**

The present study is aimed at exploring the behavioural aspects of the heart patients and to do a psychological analysis of natural cure methods in healing heart ailments through changing unhealthy life style and the psychological variables found. As the examination of the related theoretical and empirical literature suggests, the present study was attempted through two phases.

#### **Phase I**

Phase I was an exploration to find out the debilitating psychological variables of CHD.

#### **phase II**

An experimental design is proposed at the second phase of the study, for which a "Before match-After-Design will serve the purpose. In this, a before observation was made with the specific intend of using the data to match the experimental and control subjects and each pair of matched subjects were assigned randomly to each group by using an inclusion/exclusion criteria. Individual differences are specially controlled by the design. This is a powerful

method because of the greater reduction in between group variability 'before' the treatment is administered to measure the efficiency of the newly developed intervention plan in a more reliable and valid manner, the 'Before - Match - After Design' was selected.

### **Phase I**

The method formulated for this Phase consisted mainly of the following sections.

Section A	:	Sample
Section B	:	Measures
Section C	:	Administration & Procedures
Section D	:	Statistical Analysis

#### **Section A. Sample :**

The sample for this phase of the study consisted of two major groups. They were patients' sample and normals' sample, would represent the Universe. The patients' sample included male and female cardiac patients, who were medically diagnosed as having Coronary Artery Disease. They were 105 in number, and were selected from different districts of Kerala. The normals' sample included normal subjects, who do not have any disorders. They matched properly in age, gender, locality and other demographic variables with the patients' sample.

**TABLE III.I.I**

**Split up of the Total Sample on the basis of Normals and Patients**

<b>Sample</b>	<b>Size</b>	<b>Percent</b>
Normals	105	50
Patients	105	50
Total	210	100

**Table III.1.2**

**Distribution of the Sample according to Gender**

<b>Gender / Sample</b>	<b>Sample Size</b>	<b>Percent</b>
Male	160	76.19
Female	50	23.81
Total	210	100

**Table III.1.3**

**Distribution of the Sample according to Age**

<b>Group</b>	<b>Age/Sample</b>	<b>Sample Size</b>	<b>Percent</b>	<b>Total</b>	<b>Percent</b>
I	Below 45 years	50	23.8	50	23.8
II	Between 46 and 60	95	45.2	95	45.2
III	Above 61	65	31	65	31
Total		210	100	210	100

**Table. III.1.4****Distribution of the Sample according to Religion**

<b>Religion</b>	<b>Sample Size</b>	<b>Percentage</b>
Christian	103	49.05
Hindu	51	24.28
Muslim	56	26.67
Total	210	100

**Table. III.1.5****Distribution of the Sample according to Locality**

<b>Locality of living</b>	<b>Sample</b>	<b>Percent</b>
Village	47	22.38
Town	16.3	77.62
Total	210	100

**Table. III.1.6****Distribution of the Sample according to Marital Status**

<b>Marital Status</b>	<b>Size</b>	<b>Percent</b>
Married	181	81
Unmarried	19	9
Total	210	100

**Table. III.1.7****Distribution of the Sample according to Occupational Status**

<b>Occupational Status</b>	<b>Size</b>	<b>Percent</b>
Employed	83	39.52
Unemployed	80	38.10
Retired	47	22.38
Total	210	100

**Table III.1.8****Distribution of the Sample according to Perceived Health Status**

<b>Health Status</b>	<b>Sample Size</b>	<b>Percent</b>
Good	76	36.9
Satisfactory	89	42.38
Bad	45	21.43
Total	210	100

**Section B Measures**

The present study involves many variables like, personality and stress and hostility. According to the nature of the variables to be measured, different techniques were used. The instruments used include those, which have been developed and standardized by experts in the field and developed by the investigator. The selected measures were

1. IAS Rating Scale (Mathew, 1995)
2. S.S. Inventory (Shibu & Dharmangadhan, 1992)
3. Hostility Scale (Baby Shari & Baby, J. 2000)
4. Personal Data Sheet

A brief description of the tools used, including their psychometric properties are given below:

**1. (a). IAS Rating Scale: (Mathew, 1995)**

The scale is a revision of two personality inventories, the Mathew SRT inventory developed in 1972 and Mathew Temperament Scale developed in 1976. The IAS Rating Scale measures three broad behavioural tendencies (Personality components) namely Inertia, Activation and Stability.

Root fear (death or survival anxiety, existential insecurity) as *Inertia* level or type of personality is accompanied by defensive, nonawareness or inhibition. Inertia is introverted instability on proneness to develop introverted type of maladjustment under stress. Activation is characterized by restless overactivity, uncontrolled energy, high drive and inability to remain alone or silent. Activation is extroverted inability or proneness to develop extroverted types of maladjustment under stress. Stability is characterized by high selfawareness, sensibility, freedom from maladjustment tendencies.

The Mathew IAS Rating Scale can be used as an instrument for measuring personality as well as an aid in developing self-awareness for personality development and counselling.

Trait descriptions are given below:

**1. Inertia** can be described as : Lethargic, Lacks energy, Slow, Late Fear, Anxious, Timid, Not venturing, Inhibited, Shy, Withdrawn. Weak - willed, suggestible, Submissive, Unable to assert, refuse or argue, Inability to mix with strangers, Low Self - confidence, Blind conformity, No strong emotional ties, Masochistic, Intropunitive, External Locus control (believing in fate and luck), No strong moral control, No definite values, Collectivistic

**2. Activation** can be described as : Overactive, Uncontrolled energy, Impatient, Hasty, Efficient planning practical things for the future, Analytical, Risk taking, Rash Adventurous, Go-getting, Acquisitive, Aggressive, Greedy, Competitive, Mania, Passionate, Ego-involved, Assertive, Dominant, Inability to be a follower, Thick - skinned, proud, Egoistic, Values power, rebelling, Extra punitive, Sadistic, Unable to remain alone or be silent, Internal Locus of control (believing in self - effort and freedom of will), Needing rigid external moral controls, Having conflicts, Individualistic.

**3. Stability** can be described as : Controlled, restful, detached action, Meta - motivation Sensitive, Can be fast or slow as the situation demands, Punctual, Philosophical, Wise ( in addition to being, practically efficient). Self- actualizing, Holistic, intuitive, Taking calculated risks, Balanced, Mature, Open, Warm, Even tempered, Dispassionate, Self-sufficient, self - accepting, Relaxed, Peaceful, Democratic, Can make a show of anger when required, Fair, Tolerant, Loving, Unselfish, Altruistic, Enjoys aloneness or company, Reforms groups, Moral sense based on Love, Broad minded, Transcending sex.

### **Types of Rating**

The instrument can be used to get self-rating or "Other" (non-self) ratings. Other rating include TGM (Typical Group Member

rating, Peer rating (rating of a rate of equal Status), " Superior" rating (rating made by a rater having a superior or supervisory status in relation to the rate), and "Subordinate" rating (the rater being subordinate to the ratee as when a student is evaluating a teacher). Another possible type of rating is 'Expert' rating (when a psychologist makes a rating) after an interview or prolonged purposive observation of a ratee). No separate provision has been made in the answer sheet for such a rating, but the column for 'Superior rating can be used for this.

For the present study self rating was used.

### **Reliability and Validity**

Reliabilities are in general high, particularly for reasonable educated adult rates. Vinod Kumar (1995) reports splits half reliability of 0.73, 0.89 and 0.86 for the scales, 1, A and S respectively, in a sample of 43 adult raters for self rating.

The trait classification has a high degree of construct validity as they are based on a highly developed theory anchored on time - tested traditional concepts of personality. Meaningful mean group differences have been reported on the three scales on a variety of studies.

A copy of the scale and response sheet are appended.  
(Appendix 2)

### **2 (a) S. S. Inventory (Shibu & Dharmangadhan, 1992)**

While confronting with challenge and controversy the way people reacts, is an index of their success in dealing with stress, S. S inventory is an instrument prepared and standardized by Shibu & Dharmangadan (1992) for the purpose of assessing stress. The

inventory consisted of 30 items capable of assessing stress in 3 different levels, namely (a) Family stress. (b) Social Stress and (c) Environment Stress. There are ten items to assess each of these sub variables.

**a) Familial Stress**

If an individual is happy and confident about his own qualities, he is likely to have harmonious family life. It also helps him to be assertive about his needs respect and regard from his family will be more naturally and fully forthcoming. Sense of humor, consideration for others, and respect for the changing needs of his family, are other qualities allow him to be loved by the family members as a person, with his qualities and faults. Accept and like whom he is, be open about his/her likes, needs and emotions and he/she will be encouraged an open, honest and understanding family atmosphere built on good communication.

In a similar way it is unfair to make unreasonable demands, high expectations from individuals, because it will cause stress, problems like conflict among family members, lack of responsibility of members in the family and ill health of family members will create stress in the individual. The above mentioned aspects are important in family stress subscale.

**b) Social Stress or Societal Level Stress**

Any variable that indicates how much upheaval a society experiencing can potentially be used as a measure of the stress of that society's population. For example stress will be high due to the increase of unemployment, high geographic mobility and migration have generally been viewed as stressful circumstances because the uprootedness and societal ties will lead to distress. Culture which

experience rapid social and technological change may be more vulnerable to stress and certain illness.

### **c) Environmental Stress**

Cramped or inadequate housing, violence, noise, crowding and over population are the most obvious sources of environmental stress. The larger a town or a city, the more pervasive and uncontrollable the irritations and pressures that confront its inhabitants. These will either inhibit privacy or increase loneliness and isolation and lead to stress. Dirt, bad smell, chemical pollution from petrol exhaust and cigarette smoke can be equally stressful. Crowding in public places and transportation as well as noise, will arouse nervous system, bringing the stress response to play. (See Appendix 3)

### **Reliability and Validity**

Odd- even correlation of the test was found to be 0.79 ( N = 50). using Spearman - Brown correlation formula, the correlation for the whole test in the calculated and this was found to be 0.89 ( N = 50).

The items of the test have got enough face validity and content validity.

### **3 (a) Hostility Scale (Baby Shari & Baby, J. 2000)**

Hostility is a broad concept that encompasses traits such as anger (an emotion), Cynicism and mistrust (attitudes). It is also important to note the difference between the experience of hostility, a subjective process including angry feelings or cynical thoughts and the experience of hostility a more observable component which includes acts of verbal or physical aggression. (Siegman 1994).

Many researchers now believe that not all components of Type A behaviour are pathogenic, but rather specific personality traits such as hostility and anger may be associated with coronary disease.

A scientifically valid and reliable tool to assess hostility is not available, to use with patients and adults. So investigator has planned to construct a tool to assess hostility for further research.

The onset and experience acts of hostility have generally formed to have a greater correlation with coronary heart disease even after controlling other risk factors (Miller *et al.*, 1996). Cynicism and mistrust of others was shown to be related to occurrence of coronary disease (Barefoot and Lipkus 1994). Outward experience of hostility, cynical or suspicious mistrust of others are delay emotions which are damaging to health. (Williams *et al.*, 1980). Cook and Medley Hostility Scale measures anger, cynicism, suspiciousness and other negative traits. Smith (1992) had pointed out, hostile people will be easily provoked and worsen social conflict, and undermine their social support, social environment will be viewed as less supportive and more stressful by them. Hostile individuals tend to experience, excessive anger, and won't like to seek or accept social support (Houster & Vavak, 1991). Strong (2004) & Engebreston (2004) also had supported the fact that experience of anger is damaging to cardiac health. Iribarren (2000) had found, the hostility include, anger, cynicism, mistrust of other and aggressive behaviour, where as Niaura's study included paranoid alienation, Cynicism, aggressive responding etc. Danka *et al*, in 2000, argued that hostile behaviour include anger out, anger in and negative effect which will influence their coping styles. Chipley (2000) had written that 3 aspects of hostility are cynicism, aggressive responding to problem and negative feelings toward others, Hostility is

characterised by suspiciousness, resentment, frequent anger, antagonism and distract of others (Barefoot *et al.*, 1989)

Oxford Dictionary explains, hostility as being antagonistic or showing enmity. Webster's Dictionary explains it as a state of being hostile, unfriendliness or animosity.

It may take into the form of direct attack to the enemy or resentment, According to Ramsay, it has got components like anger experience, anger expression, neurotic disagreeableness, resentment, suspiciousness, cynical hostility and neurotic hostility.

According to the review of related literature the components selected for the preparation of the scale were hostility, anger annoyance, resentment, contempt, suspiciousness, mistrust, cynicism, pessimism, irritation, enmity, antagonism, attack, neurotic hostility, social aggression, impatience, opposition, hatred, negative impulses like teasing people, children and animals, lack of cooperation, relating to interpersonal relation, bad tempered, complaining, argumentation, competition etc. By keeping these components as standard, items were prepared, as the preliminary form which were undergone evaluation of experts. Modifications, omission, preparation of draft scale, try out, item analysis etc. finally after confirming reliabilities and validity, the scale was finalized.

### **Test Construction**

The various steps and procedures undertaken in the construction, development and standardization of the scale are described and presented in the following sections.

#### **1. Planning of the Scale**

Investigators had extensively studied the available literature and also examined the researches in the area of hostility.

## **2. Preparation of the Scale**

In consultation with the experts in the field of psychological research informal discussions and interviews with the experts and researchers, the investigators had prepared a list of items about hostility and items were written accordingly. Those items were then submitted for examination by experts to avoid ambiguity and confusion. Some items were deleted and some others were modified. Some of the examples of the items are as follows.

- \* My anger towards some people will be for ever.
- \* It is so far to be suspicious towards everybody.
- \* Nobody is trustworthy these days
- \* I can forgive to any extend.
- \* To be virtuous is more important than anything

## **3 Try Out**

The list of items, arranged in a random order was administered to a sample of subjects with appropriate instruction. The preliminary form included 41 items. They were statements about the feelings and reactions, where one face unpleasant behaviour from other or unpleasant situations. The subjects were provided with 4 response categories to express their responses, namely, 'Always true' 'Some times true', 'Rarely true' and 'Never true'. Care was taken to have both positive and negative items in the scale. In the draft scale there was 25 positive items and 16 negative items (Copy attached in appendix 4).

#### **4 Sample**

Sample was selected from different urban and rural areas of Calicut, Malappuram, Thrissur and Kottayam districts of Kerala. Purposive sampling technique was used. Patients with different diseases like asthma, arthritis, ulcer, migraine and tension headache, CHD, spondilitis, hypertension, hyperthyroidism, cancer etc. and normals of both gender, served as the subjects. There were employed, unemployed and retired subjects in the sample and their age ranged from 21 years to 70 years

#### **5. Administration**

The subjects were personally met either at their work place or at home. The investigator introduced her self and her purpose of research. The subjects who were willing to undergo the scale were provided with the draft scale and a good rapport was established. They were also provided with needed instructions to undergo the scale. They were instructed as follows. "In the scale, there are 41 statements about your feelings and reactions when we face unpleasant situations. However, these statements are true about you? Your answers may be marked using a '✓' make in the column for 'always true', some times true', 'rarely true' or 'never true'. You need not write your name or address in the questionnaire. You try to be honest in your response, because it will be confidential and will be used only for the research purpose.

After the completing the responses the scale was received back, thankfully and it was checked to verify whether all responses were provided or not.

## 6. Scoring

There was both positive and negative items in the scale so that different scores were provided for the response of positive and negative items. For a positive item, a score of 4,3,2 and 1 was given for the responses 'always true' 'some times true', 'rarely true' and 'never true' respectively, where it was in the reverse order for a negative item. In the draft scale 5, 7, 8, 10, 11, 12, 14, 16, 18, 19, 24, 30, 35, 36, 40 and 41 were the negative items.

## 7. Items Analysis

The response of 400 subjects were used for item analysis. All of them were responded completely, so that there were no need to delete response sheet due to incompleteness.

Item analysis was one as per the method suggested by Edwards, (1969). The 400 respondents were scored and arranged in the descending order of the scores. The upper and lower 25% of the response were treated as upper group and lower group, respectively. The frequency table was considered by considering each item. Then the 't' value of each statement was calculated to find out discriminating power. The value of 't' is a measure of the extent to which a given statement of hostility differentiate between the high and low group. The t value was calculated using the formula.

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{\sum(X_H - \bar{X}_H)^2 + \sum(X_L - \bar{X}_L)^2}{n(n-1)}}$$

- $\bar{X}_H$  - The mean score of the given statement for high group.  
 $\bar{X}_L$  - The mean score of the given statement for low group.  
 n - Number of cases.

$$\sum(X_H - \bar{X}_L)^2 = \sum X_H^2 - \frac{(\sum X_H)^2}{n}$$

$$\sum(X_H - \bar{X}_L)^2 = \sum X_L^2 - \frac{(\sum X_L)^2}{n}$$

Those statements exceeding the 't' value of 3.53 were selected for the final scale.

**Table III.1.9**  
**Details of Item Analysis of Hostility**

Item No.	High Group		Low Group		t-value	Selection of Items
	Mean	S.D	Mean	S.D		
1.	3.39	0.803	2.0	0.974	11.01	√
2.	3.22	0.799	1.76	0.842	12.58	√
3.	3.71	0.574	2.03	1.123	13.32	√
4.	2.89	1.081	2.04	1.044	5.66	√
5.	1.41	0.653	1.29	0.478	1.48	
6.	3.49	0.689	1.68	0.839	16.67	√
7.	2.07	1.037	1.42	0.768	5.04	√
8.	2.27	1.23	1.39	0.65	6.33	√
9.	3.45	0.730	1.86	0.932	13.43	√
10.	2.0	1.101	1.1	0.461	7.54	√
11.	2.18	1.067	1.25	0.557	7.72	√
12.	2.84	1.089	1.66	0.67	9.23	√
13.	2.63	0.706	2.75	0.903	7.68	√
14.	3.16	0.94	2.02	0.876	8.87	√
15.	3.72	0.57	2.51	0.882	11.52	√

Item No.	High Group		Low Group		't' value	Selection of items
	Mean	S.D	Mean	S.D		
16.	2.55	0.914	1.72	0.805	6.81	√
17.	2.94	0.93	2.52	0.858	3.32	
18.	2.44	1.095	1.41	0.726	7.84	√
19.	1.69	0.706	1.06	0.343	8.02	√
20.	3.6	0.667	1.62	0.972	16.8	√
21.	3.62	0.599	2.34	0.89	11.93	√
22.	3.34	0.807	1.66	0.934	13.61	√
23.	2.22	1.186	1.29	0.729	6.68	√
24.	3.21	0.880	1.86	0.804	11.33	√
25.	3.42	0.794	2.29	0.977	8.97	√
26.	2.26	1.001	1.1	0.389	10.8	√
27.	1.6	0.876	1.07	0.432	5.42	√
28.	2.83	1.11	1.43	0.87	9.57	√
30.	1.87	0.872	1.08	0.367	8.35	√
31.	2.68	1.091	1.46	0.758	9.19	√
32.	3.41	0.726	1.44	0.743	18.96	√
33.	3.43	0.844	1.23	0.553	21.71	√
34.	3.79	0.498	2.64	0.894	11.24	√
35.	1.71	0.891	1.33	0.804	3.53	
36.	1.19	0.419	1.11	0.469	1.27	
37.	2.69	0.964	1.26	0.613	16.65	√
38.	3.61	0.584	2.08	0.961	13.61	√
39.	3.09	0.996	1.87	0.981	8.73	√
40.	2.18	1.114	2.36	0.98	1.21	
41	1.63	0.661	1.04	0.243	8.37	√

**Table III.1.10**

**Mean, Standard Deviation and t value of High and Low Hostile Groups**

<b>Groups</b>	<b>Means</b>	<b>Standard Deviation</b>	<b>t value</b>
High Hostile Group	112.62	7.433	46.13
Low Hostile Group	68.33	6.085	

## **9 Validation**

The final scale was subjected to the examination of different experts in the field of Psychological research. They examined the statements of H.S. On the basis of their thorough examination and judgments. Statements related to hostility of subjects were selected; and the scale as a whole is sufficient to assess hostility. Hence the face validity of the scale is ensured.

For Criterion related validity, the scale was administered to a representation sample of 60 and the scores were collected. The sample was administered Virtue Scale (Baby, 1999) along with Hostility Scale. First set of scores were correlated, against the set of scores obtained from the same sample by administering Virtue Scale as an external criterion. The correlation coefficient thus obtained was - 0.5874.

## **10 Establishment of Reliability**

Reliability of Hostility Scale was established through test - retest and odd - even methods. It was worked out on a representation sample of 60, on whom the validation was done. Two consecutive administrations had an interval of 1 month time. The two sets of scores thus obtained were correlated using Pearson's

Product Moment technique. The reliability coefficient obtained are given below.

Alpha coefficient	0.9446
Equal length coefficient (Spearman Brown)	0.9338
Gutman Split Half	0.9336
Unequal Length(Spearman Brown)	0.9338

By considering 't' values and after establishing reliabilities and validity, the final scale was prepared, Item member 5, 17, 35, 36 & 40 was deleted from the preliminary draft.

The final scale thus consisted of 36 items. In the preparation of final scale, the selected items were separately given with necessary instructions. Copy attached in appendix – 5

#### **4. Personal data sheet**

Details of the subjects, like information about their personal and demographic variables were collected, using a personal data sheet prepared by the investigator. In the case of patients' sample, additional information like clinical history, treatments already undertaken etc were also included. A copy of the personal data sheet is attached in appendix - 6.

#### **Section C : Procedure & Administration**

The needed data were collected from the different hospitals situated in Kerala for the patients' group . For the normals' group data was collected from the neighboring areas. Authorities of the selected hospitals were contacted by prior appointment and had discussion about the purpose of the study as well as the importance, nature, application and nature of information required

for the study. Then the authorities introduced the investigator to the cardiac specialists departments, through the proper way. The patients were identified by specialists based on the medical and radiological investigations. The normal group of subjects were selected at random from among the bystanders and also from the near by place. They were told that since it was a research work their responses should be too sincere and intimate, and assurance was given to them that the information gathered, would be used only for research purposes and that everything including their identity would be kept confidential.

All the above mentioned tools, to measure the variables under study were administered to the subjects, individually by the investigator. Individual appointments were fixed at a place (their home/ hospital) and time, convenient for the subjects. This method of data collection was fixed to be of great advantage in many ways, namely.

1. 100 percent response was guaranteed.
2. The rapport between the investigator and the subjects provided a better understanding
3. The subjects were relaxed and could clarify the doubts regarding the items
4. When the subjects were illiterate, the investigator had read each item to them and their responses were marked in the response sheet
5. Sincere responding can be guaranteed and faking can be avoided.
6. The subjects could again clarify their doubts about the investigator's purpose

7. The subjects can have a mental set for responding as the meeting is fixed earlier.
8. Increased, objective of responses.
9. Avoiding misinterpretation, distortion and exaggeration of situation by the subject.

### **Administration of tools**

The tools used in this phase of the present study viz., IAS Rating Scale, S.S. Inventory and Hostility Scale. Instructions for responding to the statements were printed in the tools itself very clearly. Even then the investigator gave oral instructions to the subjects, in view of getting better responses. The style of responding varied from one scale to the other. The following are the instruction given to subjects.

#### **1 (b). Instruction for Mathew IAS Rating Scale**

The instruction for making responses are printed in the scale. A separate answer sheet was provided to mark the responses of the subjects. Oral instructions was provided as follows : "In the booklet provided to you 35 behavioural qualities are written. For each items three different specifications are also explained. You see, what all explanations are applicable in your case, that is, what all specifications are true in your case. If all the three are true in your case give a score of 1 to all the three. If two among them are true in your case, give a score of 2 for the behaviour which is more intense. A score of 1 can be provided to the other. If only one of them is applicable to you or to your behaviour, you give a score of 3 for that sub-item. That is, the total of the sub item scores will be 3 in any case. You can mark your response in the separate sheet provided

but do not evaluate their different personality aspects by themselves."

## **2 (b) Instruction for S. S Inventory**

The following instructions were given to the subjects, individually. "In our day to day life we have to face difficult circumstances, at different spheres of life. When we face these situations, we experience stress and tension. But the degree of stress may be varied from person to person. Here, some statements or events are given to know the degree of stress experience when you face such situations. You carefully read each statements and indicate the intensity of stress you might have experienced during the situation described in each statement".

"If you experienced too much stress when facing a situation put a circle around 'A'. Encircle 'E' if you do not experience stress. If your state of stress is mild (cannot differentiate) put a circle around 'C'. You should encircle 'B' or 'D' based on the intensity of stress. Please remember to answer all these statements".

## **3 (b) Instruction for Hostility Scale**

Instructions were printed in the scale and the subjects could make their responses for each item directly in the right hand side of the scale. Oral instructions were given as follows, "thirty-six statements are given in this paper. They are statements about our feeling and reactions, when one face unpleasant behaviour from others or unpleasant situations. See, how far those statements are true about you. Your answer may be marked in the columns. You can put '✓' mark in the column for 'always true', 'Some times true', 'rarely true' and 'never true'. You need not write your name or address in this questionnaire. Try to give your true responses".

## **Procedure**

Investigator personally contacted and informed the need for collecting data from them. Those who were willing, their convenient time was sought and a schedule was fixed. As per fixed time and schedule, the investigator again personally contacted them with all the printed materials and response sheet.

Their doubts were clarified and instructed how to take the tests. All the subjects were firmly convinced that their identity and information about them will be treated confidential used for research purpose only.

In the case of the normal subjects there was no need to take the clinical history but care was taken to verify that they do not have any history of any serious psychophysiological disorders. They were administered the instruments number 1,2 3and 4 according to the respective instructions.

The scales and the responses sheets were collected back individually and investigator had personally appreciated and thanked the subjects who participated and cooperated in this study.

## **Scoring**

The collected response sheets were first checked for incomplete responses, which were excluded from the data set. The response, which were complete in every sense, were scored according to the scale, as described below :

### **1 (c) IAS Rating Scale**

The answer sheet of IAS Rating scale was checked for omission. It is recommended that an answer sheet with more than 2 omissions, should not be scored. Then it can be checked whether

the total points of each item is 3. To attain the separate scores for three different dimensions, Inertia Activation and Stability, the scores in each column can be added, the total of all the score should be 105, if no item is omitted.

## **2 (C) S.S. Inventory**

Scores 4, 3, 2, 1 and 0 was given against the responses A, B, C, D and E respectively. The total of all these scores provided the overall stress score, where as separated total was found to assess familial, social and environmental stress. There was 10 items each in each of these dimensions.

## **3 (c) Hostility Scale**

Scores of 4, 3, 2 and 1 were provided for responses, 'always true', 'sometime true', 'rarely true' and 'never true' respectively, for positive items and scores were given in reverse order for negative items. The total of scores for all the items provide the total hostility score. There was 36 items, so that the scores will range from 36 to 144. Items 6, 7, 9, 10, 11, 13, 15, 16, 17, 22, 28 and 36 were negative items.

## **Section - D : Statistical Analysis**

The important statistical techniques used in the present investigation to facilitate the analysis and interpretation of the data are presented below.

### **1. Correlation**

A coefficient of correlation is a simple index that represents the extent of relationship between two variables. It can be computed in different ways depending on the nature of the data. The standard kind of coefficient of correlation, and the one most commonly

computed, is the Pearson's product moment coefficient (Pearson's 'r'). Pearson's 'r' was employed in the present study to estimate the interrelationship among the variables of IAS personality dimensions, stress and stress dimensions, and hostility. The significance of the obtained 'r' was compared with the limits established using the standard error of 'r' which is calculated for 0.1%, 1% and 5% level. The product-moment correlation between any two variable can be described in a general way as high, marked or substantial and low or negligible. Garrett (1969) presents the following classification for interpreting the various value of 'r's.

r from 0.00 to +/- 0.20 denotes negligible relationship

r from +/- 0.20 to +/- 0.40 denotes low correlation present

r from +/- 0.40 +/- 0.70 denotes substantial relationships

r from +/- 0.70 to +/- 1.00 denotes high to very high relationship

## **2. Analysis Variance**

The analysis of variance is a statistical technique for analysing measurements depending on several kinds of effects operations simultaneously to decide with kinds of effect are important to estimate the effect.

The comparison of the mean difference among three or more groups is usually done using Analysis of Variances. When the sample are classified on the basis of one variable, the technique is called one way ANOVA and when two classificatory variables are there, the techniques is called two-way ANOVA. In two or more way ANOVA, interaction among the classificatory variable may also be estimated. When the F obtained in the analysis is statistically

significant, it indicates that there is significant mean differences among the groups in the dependent variable.

In the present study series of one way ANOVA was employed to find out the significant differences in the mean scores of on the study variables of stress and hostility. And also a two way classification of the sample based on groups (Normals/Patients) and personality dimensions (Inertia Activation/Stability) was made, and ANOVA was employed to find out significant difference in the mean scores on all the study variables. The techniques was specially suited to separately find out the differences between the normals and patients group and the three personality dimensions as well the interaction between these two classificatory variables.

### **3. t- test**

This is the statistical test appropriate for judging the significant of a mean or judging the significant of difference between means of two samples (Garette, 1969). t -test can be applied in three firms. Small sample, large sample, and correlated.

The t-test is based on t-distributions if the calculated 't' value exceeds the cut-off point (depending on the degrees of freedom) the difference between the means in considered significant. When the t-value is below the critical value, the difference is said to be significant.

### **4. Multiple Regression Analysis**

Multiple regression is a multivariate analysis method that relates a dependent (or criterion) variable (Y) to a set of independent (or predictor) variable (X) by a linear equation, such as

$$Y^1 = a + b_1 x_1 + b_2 x_2 + \dots\dots\dots+b_k X_k$$

The regression or 6 weights are usually determined by the principle of least squares, so as to minimize the sum of the squared deviations of the dependent values from the corresponding predicted values – that is, to minimize  $\sum (Y - Y^1)^2$ . Multiple correlation, related method is sometimes defined as  $R = r_{yy^1}$ .

In a "stepwise" approach, variables are added (or removed) one at a time from the independent variable until/there is non significant change in the value of R. Also, sets of variables may be added (or removed) to evaluate their contribution to the multiple correlation, and are t-test done to determine if their effect is statistically significant. Nonlinear relationships may be evaluated by including higher order terms (e.g.,  $X_1^2$ ) and / or multiplicative terms (e.g.  $X_1 X_2$ ) on the right-hand side of the equation.

The regression weights are determined most reliable when the impendent variables are relatively uncorrelated. The situation where some of them are highly intercorrelated is referred to as "multicollirealtively" and tends to yield regression coefficient whose values may fluctuate markedly from sample to sample.

Some common uses for multiple regression are :

1. To obtain the best linear prediction equation
- 2 To control for confounding variables
- 3 To evaluate the contribution of a specific set of variables
- 4 To account for seemingly complex multivariate interrelationships.
- 5 To perform analysis of various and covariance by coding the levels the independent variable. (Reymend 1994).

**PHASE II**

The method formulated for this phase consisted mainly of the following sections.

Section A,	:	Sample
Section B,	:	Measures
Section C,	:	Experimental Design
Section D,	:	Procedure
Section E,	:	Statistical techniques

The main aim of the present study was to do a psychological analysis of Natural Cure methods in healing heart ailments. So natural cure methods were provided to the patients as intervention and the Psychological assessments were done before and after the intervention for the analysis. The details are as follows:

**A. Sample :**

The sample for this phase, was medically diagnosed heart patients who suffer from Coronary Artery Disease. The following exclusion and inclusion criteria were also used to selected patients.

**Inclusion Criteria**

1. Medically diagnosed cardiac patients,
2. The heart disease due to Coronary Artery Disease
3. Number of heart attacks less than 3
4. Serum Cholesterol level more than 200 and less than 300.
5. Age between 45 and 60 years

## 6. Symptoms like

- Angina
- Ischemia during severe to moderate exertion
- Difficulty in climbing steps

7. Patients who can verbally communicate their difficulties

8. Patients who Speaks Malayalam/English

### **Exclusion Criteria**

1. Heart Patients who had massive Myocardial Infarction .

2. Heart patients who were diabetic

3. Body weight above 80 kg and below than 40 kg.

4. Age more than 75 and below 45 years

5. Heart Diseases other than CHD

6. Serum Cholesterol more than 300 mg

7. Patients who can't walk or do minor exercises.

8. Patients with symptoms like

- Angina during mild exercises
- Painless heart attacks earlier
- Severe perspiration during slight exertion
- Severe palpitation.

The sample for this phase consisted of two major groups. The control group (N=10) was selected from different private and government hospitals and they were met at their homes, as they were

outpatients. They were cardiac patients who strictly followed allopathic treatments and fulfilled the above mentioned inclusion and exclusion criteria.

The experimental group (N = 10) were also of similar category, but they were patients who didn't strictly follow allopathic treatment. They also were 10 in number and met at the intervention campus. For this group, one more inclusion criterion was followed namely, their voluntary participation in the intervention program.

Both experimental and control group matched properly in age, gender, locality and other demographic variables.

**Table III. 2. 1**

**Distribution of the Sample as Experimental and Control Group**

<b>Sample groups</b>	<b>Experimental group</b>	<b>Control group</b>	<b>Total</b>
Sample size	10	10	20

**B. Measures**

The present study involved the following variables.

Psychological variables:

- 1 IAS Dimensions of Personality
- 2 Stress
- 3 Hostility
- 4 Personal data

Physiological Variables :

- 5 Systolic and Diastolic Blood Pressure
- 6 Pulse
- 7 Breath Rate
- 8 Body Weight

So as to assess, the above-mentioned variables, the following tools are used

- 1 IAS Rating scale
- 2 S.S. Inventory
- 3 Hostility Scale
- 4 Personal data Sheet
- 5 Digital Electronic Blood Pressure Monitor
- 6 Stop watch
- 7 Weighing Machine

A description and all the details of the tools number 1, 2, 3, 4 , 5 were given in phase I and appendix 1, 2,3,5, & 6.

**C. Design**

The study carried out aimed to develop an intervention program for heart patients and to assess the effectiveness of the intervention, which was applied to the experimental group alone.

To evaluate the effectiveness Before- Match-After Design was used. The design can be illustrated as follows

Experimental group	R	M <sub>1</sub>	x	M <sub>2</sub>
Control Group	R	M <sub>1</sub>		M <sub>2</sub>

R - Randomization

M<sub>1</sub> - Measurement of variables before intervention  
(Pre-intervention assessment)

M<sub>2</sub> - Measurement of variables after intervention  
(Post intervention Assessment)

X - Intervention Progress

#### **D. Procedure**

In this phase the total procedure include 3 steps

##### **D1 Preintervention assessment**

The subjects in both experimental and control group and were informed and their permission and co-operation were sought for participating in the research work. subjects of experimental and control group were met personally and psychological assessments were made before starting the intervention. According to the scientific instructions, the tools were administrated (The detail are given in Phase I).

##### **D2 Intervention**

This intervention was given only for 10 members of the experimental group. The intervention program was consisted of natural cure methods, for a period of 41 days and the total program includes strategies as follows:

- A. Natural Diet
- B. *Panchabhuta upasana*
- E Yogasana and Meditation
- D Self Expression Programmes
- E Psychological Counseling

### **A. Natural Diet:**

This include eating raw food (that is fruits, nuts, grains, sprouted grams and vegetables in the unboiled form) and drinking fresh water (unboiled and untreated with chlorine or alum) and breathing unpolluted fresh air, sun bath water bath etc. Cooked food should be avoided completely, for entire package schedule of intervention (41 days).

### **B. *Panchabhuta Upasana***

This is constant interaction of the living body with its constituent physical elements, *Panchabhutas*, namely *prithvi* (earth), *apa* (water), *taya* (fire), *vayu* (air) and *akash* (ether) out of which the living body as well as everything in the world is evolved or created. As per ancient view of health, imbalance in the constituent elements of the body, as well as keeping away from '*panchabhutas*' will make one sick.

### **C. Yogasanas and Meditation**

Yoga is union - the integration of body, mind and psyche through heumoural and hormonal balance, elimination of toxic substances from body, increased blood circulation, and altered immune function through proper dispersion of '*prana*' all over the body by correcting breathing. Blockage of energy to any part of the

body results in to symptoms as per ancient view of health. Yogasanas lead us to meditation. The classical definition of mediation in *Pathanjali's 'Yoga Sutra'* is that "when the mind has been able to transcend the knowledge of smell, sound, touch, form and taste and at the same time when the consciousness is functioning around. One point concentration is not meditation, but a way to *dhyana*. Yogasanas and meditation are intended to bring about the spontaneous state of '*dhyana*' and finally result in increased energy transmission all over the body.

#### **D. Self Expression Programmes**

This is meant for any artistic expression without any external compulsion. It may be individual or group singing, short skits, games or anything of such sort as entertainment program which will improve communication and self expressiveness.

#### **E. Psychological Counseling:**

Formally and informally each patient can consult the investigator at several occasions individually and in the group (with family members, spouse etc) and get counseling.

#### **Intervention:- Procedure and Administration:**

The detailed procedure of different steps of the intervention program are given below.

The Intervention program extent up to 41 days and include all the above-mentioned strategies. The patients need some kind of training to learn and clarify doubts about those different steps so they were taught, by providing camps and given necessary guidance.

Camps were organized in various districts of Kerala. Patients were informed about the camp, through Government and Private

media, such as radio, and newspapers in which the venue, duration of the camp, etc. were announced. Those who responded, stating their willingness to participate in the camp were sent details about the camp. The salient features of the camp, was described in the communications. A copy of such a communication is attached in Appendix 7.

The initial camping was for 7 days and later the patients were gone home and practiced the life style, learnt from the camp, at home. A follow up was done during the 21st day, so that the patients could again have contacts with the investigator personally, in the group (group of patients), so as to clarify their doubts. The 2nd follow up was on the 41st day.

#### **D..2..A . Natural Diet:**

Unboiled fruits, vegetables, nuts, sprouts, grains, germinated seeds were provided in the camp, for the patients to eat. Enough varieties of food of this type were provided, so that they can select this food according to their taste preferences. More over, watery fruits and nuts, like, watermelon, sugar cane juice and tender coconut etc. were also provided. Food was not supplied, but they were allowed to select and have. Vegetables and fruit salad without milks, sugar, salt or other condiments were also provided, Fresh unboiled, untreated (with chlorine/alum) water were provided, so that they can drink as they want. The patients were advised to eat or drink only when they feel hungry or thirsty. They were allowed to take rest, where they felt tired.

Morning and afternoon, according to the availability and convenience of experts classes were given about the relevance of diet control in healing heart ailments, relevance of a healthy life style etc. Even during classes by experts, the patients were allowed to be in

the posture, as they like. Classes were mainly according to the need of the patients, however content of such classes usually include Health-Disease, Symptoms of disease, Etiology, Cure process, Theoretical foundations of Natural Diet and Yogasanas, Role of Psychological factors like Personality, Stress and Hostility in heart diseases etc.

Most of the time the patients are allowed to take rest. Newspaper, radio, and television such medias are not used or played. More than classes leisure is preferred in the camps. These were no completion or torture of any kind. Even if a subject was experienced severe craving for cooked food that was provided with minimum salt or condiments but their data was not included in the study. The food, which is unboiled, contains maximum '*Pranavayu*' (oxygen), like unboiled fruits, nuts, vegetables, pulses and grain. They are *satvic* food, which are living cells and most appropriate nutrients for living bodies.

#### **D.2 B. *Panchabhuta upasana:***

The living body, evolved or created out of the physical elements (*Panchabhutas*), is to be in constant interaction with its constituent elements in order to sustain life. So keeping away from *panchabhutas* will make us ill. We cannot live with out breathing, more than one or two minutes, as we have inseparable relation with *vayu*, which we need not only through nose or mouth, but also through water, food and through skin. Experts' classes will include topics of this sort, so that the subjects can clarify their doubts and can practice these steps, during the free time in the camp and also when they went back home. All these things were taught to the patients and they were allowed, for drinking plain water, breathing fresh air, wear nonsynthetic or cotton dress, do water bath, swimming etc. as camps

were organized in places with such facilities and in a less polluted area.

Living body can accept the organic nutrients in the plants, which had already absorbed, nutrients and minerals from the soil. Tactile contact to earth is needed for the efficient functioning of the brain, heart, pancreas etc. Shoes, synthetic flooring etc. prevents own contact with the earth. Perhaps the brain and such organs may need some kind of earthing, similar to that of electronic equipments (Baby 2004). So the patients were allowed to walk bare footedly through terrain or on grass, at times during free time in the camp.

Direct reception of moderate sunlight or diffused sunlight also is necessary for life. It is highly unhygienic to live in dark rooms. So chances are provided in the camp for sunbath. *Upasana of akasha*, the need of space inside the body, is essential for health, which was accomplished by fasting. Fasting was not compulsory in the camp, but if the patients do not want food or feel it as tasty, they were allowed to fast and as the desire for food or craving comes back, they can come back to the natural diet. The subjects were taught about fasting, so that they could do this, when they were at home, *Akasha* is believed to be ether. The proportionate combination of the bodily elements (*panchabhootam*) is health and the excess or deficiency of any of such elements leads to disease.

## **D2. C Yogasanas and Meditation:**

Yoga is intended for expediting the human evolution, but here the purpose is limited to increasing health, as health also is related to aim of yoga. Health is not different from enlightenment, happiness or *nirandarananda*. Yoga has got therapeutic effects also. Here along with yoga patients are advised to attend to their breathing, which gives a meditation effect. It is different from

concentration. These yoga postures are specially designed to be practiced even by patients cured after open heart surgery, still patients are instructed not to do yoga, if they are not capable of doing it.

The salient features of the basic yoga course practiced in the present study were:

- There is no specific rule for breathing.
- Observing breathing is practiced during *asanas* , which is a budhist type of meditation.
- Whole session is done in silence, as the purpose of yoga is bringing internal silence, which is *visranthi* (relaxation), opposite of stress.
- Exercises are not mixed with *asanas*, as exercises are predominantly *rajasic* where as yoga is *satvic*. Yoga activates the CNS- brain and other parts of nervous system while exercises activates muscles. Yoga is for calming down where as exercises are for warming up.

In the present intervention, 23 postures basic course was taught to the experimental group. There were brief '*Savasana*' in between, in which a budhist meditation technique, of observing breath was merged. With the help of trained yoga teachers this basic course was taught. These postures' course was scientifically developed on the system followed by Lonavilla School of Yoga at Kaivalydharm, Pune and can be practiced by all kinds of patients, including people with heath ailment. 'A self help manual for therapists' by Dr. J. Baby (2000) was used for giving instructions for each posture. In the intervention session before starting to learn yoga, the following initial instructions were given. "It is always better

to learn *yogasanas* from a teacher but it is not impossible to learn yoga from properly prepared audio, video and print media devices. The success depends on our motivation and enthusiasm".

1. "Judge a teacher with yogic personality."
2. "All movements should be slow and steady, (as if the slow motion in movie) without jerking, shivering and wavy motions. Excess sweating, redding of eyes, back pain, cramps and unhappiness while or after doing *asanas* are indicative of wrongdoing. However such problems are likely in the initial stages of training."

*Yogasanas* was done on sheet or non synthetic mat to avoid earthing of the energy converged in the body. The patients were advised not to do comparisons with others, but to observe demonstrations and follow. They were asked not to follow if they feel tired or sick, but do only '*Savasanam* and meditation'. They were also instructed as follows, "Avoid *yogasanas* during menstrual period, after heavy meal, taking stimulants or intoxicants etc. It's better to be practiced, during morning and evening, with empty stomach. There shouldn't be any mental torturing during *yogasanas*. Reading of great teachers will accelerate the transformation in us, through development of virtues. Stopping the *yogasana* practice won't adversely affect health. You can also limit your *asanas* to a few, when you have less time to practice, but take care to have equal forward and backward bending *asanas*. Sequence of *yogasanas* in this course is made accordingly". A model of yoga postures is appended (See appendix 8).

### **Instructions followed by the instructor:**

The instructor was sitting in '*Padmasana*' while giving instructions. He/she was alert calm and relaxed, as all participants should be visible to him and he was visible to all. The tone of the instructor was pleasant and gentle. Harsh tone or words were not used. Instructions were natural and genuine. Elongating of words was not used. Instructions were minimum and well edited, to avoid too much talking and to give silence to experience. Once the subjects grasped the details, instructor announced only name of the *asana* (by 6th session onwards).

Patients were instructed to voluntarily control their tendency to talk and look at others during yoga, which may be harmful. The demonstration of postures whenever necessary was done by another expert, in front of the instructor. Those who had cramps were asked to relax in *savasana*. Yogasana postures, as self initiated movements, instructor didn't support or lift anybody part of the practitioner. Supporting also is wrong. As far as possible instructor didn't touch the practitioner, except on falling or locked up position

Before starting Yogasana postures the subjects were asked to be in *padmasanam*, (cross legged sitting posture) or in a comfortable even position, and do a meditation, by closing eyes and observing breathing for three minutes. They were allowed to attend the body movements results from the inhalation and exhalation.

The basic course of yoga was held for 11 continuous sessions as morning and evening of 5 days in the camp. 23 postures were taught in the first 6 sessions and the next 5 sessions were used for corrections of postures. First session-postures 1 to 6, second session postures 1 to 8, third session 1 to 12, fourth session 1 to 16, fifth session 1 to 18 and sixth session 1 to 23. Before closing each

session *savasana* was given for 5 minutes followed by a meditation for 3 minutes which was done in the beginning and then reciting a *manthra*, as a breathing exercise (For eg. Aum, Allahu, Halleluyah etc.). The first session of yoga was in the 2nd day morning and the last session was in the 7th day morning during the camp.

During the first two-three sessions each asana was repeated twice or three times. But by the third session, learnt *asanas* needed be done only once, in order to keep up time.

Yoga sessions were arranged in a calm, airy and safety feeling place where all the participants were visible to the instructor. As yoga were practiced as a group in the camp there is a very good effect of group dynamics.

#### **C2 D. Self Expression Programs:**

Usually camps were organized in a less polluted area and assistance of artistic experts was sought for the camps, especially during the evening or night. When the camp members were free after supper and before their sleep (usually between 8p.m and 9p.m). There will be classical music presentations by the experts in music. The camp members were taught some music for community singing. Later the camp members were invited for their own artistic expression. Though there was no compulsion, many could take part and do presentations, like singing, doing short skits etc. These kinds of activities helped to decrease the patients stress, feel the social support, feel happy, self-sufficient, get intimacy with other camp members etc. These entertainment programs and group games helped to improve their communication and self expressiveness

These programs were made as liberal as possible. No participant was forced to do anything, but they automatically get

involved in the activities. The artistic expressions were not much structured, but musicians and artists were making performances in which the patients were allowed to participate

### **D<sub>2</sub> E. Psychological Counselling:**

The role of counsellor in the health settings is normally two-fold: First to course the patients and their relatives either individually or in groups and secondly to work with health professionals and staff involved.

When patients get to know that he has heart disease, their concerns preoccupations and worries have been shown to change dramatically, focusing around the illness and its effect may have on their daily activities, their work and their family life. Distress and anxiety is common among patients and their relatives, which will negatively affect the recovery. Distress and anxiety can be reduced, by providing information about illness, causal factors and treatment. However, providing information is not always straightforward. It often needs to be given in a sensitive manner after exploring what the individual already understands, wants to hear, and can cope with at that particular time (Maguine1991). Medical staffs do not always have the time available or the skills and the role of counseling psychologist could be valuable in this regard either in understanding the role themselves or in educating and advising others.

One of the aims of counseling in the present study intervention was to give information and support to patients and relatives. Done well, it had improved compliance and recovery and save lives. This strategy had focused on actively involving the patient in the intervention, and encouraging them to talk freely about their problems.

Usually general counseling was given to the subjects to help them develop awareness regarding the nature and causes of their difficulties and coping strategies. Counseling had aimed at changing their attitude toward illness, develop confidence in their problems, change their life style, to decrease distress and anxiety, provide support etc. Most of the counseling for the present study was given indirectly and an eclectic approach counseling was adopted for this.

Health counseling is an approach that recognizes the interactions of psychosocial and physical factors. Here the counselor had used psycho educational methods to impart information and develop skills that help clients to maintain and improve health. Through counseling, it was aimed that the subjects had received an idea that health can be improved and lives can be extended by changing their life style behaviour. This was given as health education and prevention program.

The sessions of counseling ranged from 2 to 5, for different subjects. The rationales for the other strategies in the intervention were also explained during counseling session.

#### **About camp :**

Camps were organized in collaboration with voluntary organizations like nature curists, environmental activists, youth club and other organizations such as schools, colleges etc. Usually it commenced in the evening and general introduction about the camp was given. There will be an opening lecture in which design of the camp, possibility about the prognosis and all other therapeutic and practical aspects were disclosed to the patients. They were properly informed that the entire camp is a self initiated cure program rather than an expertise professional therapy. The camp members was informed that they had the freedom to quit the program at any time,

if they want. The camp members were allowed to contact medical experts whenever necessary. Those who were following drug therapy, had advised to continue it, until they were able to stop it. Such patients had to bring their drugs as well as prescriptions (which is mentioned in the communication). On the first day patients will sleep after supper (cooked food).

On the first day there will be rapport building, mutual interaction which will help to improve their motivation. Then the camp procedures will go on accordingly for 7 days.

There is no strict time table for camp activities except the morning yogasana was from 7.30 to 9 am and in the evening from 6.30 to 8 pm. Holistic health principles were taught, immediately after yogasanas in which the patients were free to clarify their doubts.

After the initial camping for 7 days, the patients were allowed to go home and continue camp procedures at their home. The patients were given contact telephone numbers of experts so as to contact if necessary. On the 21st day, the camp members were asked to assemble in the same camp venue, for sharing their experiences and clearing doubts. They went back home on the same day, and the procedures had to be continued for a period, upto the 40<sup>th</sup> day the total procedure takes 41 days to complete and later the second follow up session was done on the same day and all the initial testing were repeated on that day.

All these time the control group was not provided with this kind of an intervention, rather they were following drug therapy.

**D.3. Post intervention assessment:**

After the 41 day's intervention for the experimental group, all sample (control group as well as experimental group) were met individually, by the investigator and their assistance and cooperation was again sought, for the assessment after intervention. Usually the experimental group gathered in the camp venue to share their experiences, so that the post intervention assessments were easier. The psychological and physiological tools administered were as follows.

1. IAS Rating Scale
2. S.S. Inventory
3. Hostility Scale
4. A self report

Physiological tools like Digital Electronics Blood Pressure Monitor, Stop watch and Weighing Machine were also used to assess the physiological variables.

All the above-mentioned tools (namely 1, 2, & 3) were administered and scored according to the scientific instruction. (Details are given in Phase I). More over their self reports were also collected, which indicate their past history of the disorder, duration, interventions undergone and present mental set up and symptoms. That is used to assess how far they had followed the intervention.

**E. Statistical Techniques:**

The pre intervention and post intervention levels of experimental and control groups were statistically compared. The data were analyzed to test the hypotheses formulated. The following statistical techniques were employed for the analysis of the data:

t test : - It is to judge the significance of mean difference between the pre and post intervention scores of psychological and physiological variables. When the t value is above the initial value, the difference can be interpreted as significant.

### **Individual Profile Analysis**

Informations were collected about the psychological and physiological variables for each and every individual subject in the experimental group and those data is presented in the form of a Pie diagram (IAS dimensions of personality) and Histograms (Separately for psychological and physiological variables) to do pre-intervention, post-intervention comparisons, individually.

# RESULTS AND DISCUSSION

Baby Shari P. A. “A psychological analysis of natural cure methods in healing heart ailments ” Thesis. Department of Psychology , University of Calicut, 2004

## *Chapter IV*

# **RESULTS AND DISCUSSION**

The present chapter deals with the findings arrived by statistical analysis aimed at finding the relationship of IAS, stress and hostility and their roles in the psychosomatic disease, CHD, and also predict the efficacy of an intervention program developed in an empirical manner, through psychological analysis. The results are presented phasewise in accordance with the sequence of work carried out. In phase I, diagnosed patients and normals were studied and in phase II, the efficacy of intervention was attempted to study. This makes the presentation of findings systematic and enhances meaningfulness of interpretation.

### **Phase I**

The total sample of this phase consists of 210, in which 105 were CHD patients and 105 were normals. This phase presents the results reached by the investigation through the statistical analysis of the data collected. Analysis is the key aspect of research work and it is the way to test hypotheses formulated by the investigation. The different statistical designs were used in the study to dig out the nature of the study variables and their roles in the occurrence of CHD. The results of these statistical procedures are discussed under the following sections.

Section I : Preliminary Analysis

Section II : Relationship among variables

Section III : Comparison between groups in the study variables.

Section IV : Influence of personal and demographic variables on hostility and stress.

Section V : Interaction between the study variables

Section VI : Influence of hostility on stress

Section VII : Predictors of hostility.

**SECTION I**

**PRELIMINARY ANALYSIS**

**Table IV .1.1.1**

**Basic Descriptive Statistics of Variables under  
Investigation(N=210)**

<b>Variables</b>	<b>Mean</b>	<b>Median</b>	<b>Mode</b>	<b>Standard Deviation</b>	<b>Kurtosis</b>	<b>Skewness</b>
Inertia	20.32	19.50	19.00	8.76	1.426	.875
Activation	42.31	40.00	22.00	19.68	-1.503	.025
Stability	42.33	39.50	25.00	17.38	-0.997	.423
Familial Stress	24.23	25.00	28.00	8.12	5.892	.754
Social Stress	24.11	24.00	28.00	6.47	-0.023	-.271
Environmental Stress	21.91	22.00	21.00	7.50	0.387	-.163
Overall Stress	70.26	70.00	65.00	18.52	0.072	-.309
Hostility	84.92	86.00	101.00	18.06	-1.084	-.145

Table IV.1.1.1 shows that the values of the major measures of central tendency, viz., arithmetic mean, median, and mode for the variable inertia are 20.32, 19.50 and 19 respectively. This suggests all the measures are almost equal. The value of kurtosis, the measure peakedness, is 1.426 which implies that the distribution is almost mesokurtic. Regarding symmetry of the distribution, the value of skewness is 0.875 which means that the distribution is positively skewed. But comparatively small index of skewness implies that the distribution can be considered as non-skewed.

The values of arithmetic mean, median and mode for the variable activation are 42.31, 40 and 22 respectively (Table V.1.1.1). Arithmetic mean and median are almost equal but mode is less than

arithmetic mean and median. The negative value of kurtosis (-1.503) suggests that the distribution can be considered as mesokurtic. The measure of asymmetry, skewness is 0.020, which is very close to zero indicating that the distribution is non-skewed. Thus the variable activation can be considered as normally distributed.

From Table IV.1.1.1, the values of the three measures of central tendency, mean, median and mode for the variable stability are 42.33, 39.50 and 25 respectively. Arithmetic mean and median are almost equal but mode is less than arithmetic mean and median. The negative value of kurtosis (-0.997) suggests that the distribution is platykurtic but as the magnitude is small, the distribution can be considered mesokurtic. Regarding symmetry of the distribution the value of skewness is 0.423, which means that the distribution is positively skewed, which is very close to zero indicating that the distribution is non-skewed. Thus the variable stability can be considered as normally distributed.

The values of arithmetic mean, median and mode for the variable familial stress are 24.23, 25, and 28 respectively. This suggests that the three measures are not remarkably different. Regarding the peakedness of the distribution the value obtained as kurtosis (5.892) suggests that the distribution is leptokurtic. The value of skewness, 0.754, which is positive, suggests distribution is positively skewed. Hence the variable familial stress is approximately normally distributed.

The variable, social stress is found to have a mean of 24.11, median 24 and mode 28. This suggests that the three measures are not remarkably different. The negative value of kurtosis (-0.023) suggests that the distribution is platykurtic but as the magnitude is negligibly small, the distribution can be considered as mesokurtic. The measure of asymmetry, skewness is -0.271, a negligibly small

value indicates that the distribution is slightly negatively skewed but not markedly.

From Table IV.I.1.1 it can be observed that, the values of arithmetic mean, median and mode are almost equal for the variable environmental stress (21.91, 22 and 21 respectively). Regarding the peakedness of the distribution the value obtained as kurtosis (0.387) is very small suggesting that the distribution is not much leptokurtic. The measure of asymmetry, skewness is -0.163, a negligibly small value indicates that the distribution is slightly negatively skewed but not markedly. Hence the variable environmental stress is approximately normally distributed.

As in the case of overall stress, the values of arithmetic mean, median and mode are 70.26, 70 and 65 respectively. This suggests that the three measures are not remarkably different. The value of kurtosis, the measure of peakedness, is 0.072 which is equal to zero implying that the distribution is almost mesokurtic. The measure of asymmetry, skewedness is -0.309, a negligibly small value indicates that the distribution is slightly negatively skewed but not markedly. Hence, there is no ground to believe that the distribution of the variable, overall stress is not normal.

The values of arithmetic mean, median and mode for the variable hostility are 84.92, 86 and 101 respectively (see Table IV.I.1.1). Arithmetic mean and median are almost equal but mode is greater than arithmetic mean and median. The negative value of kurtosis (-1.084) suggests that the distribution is platykurtic. The measure of asymmetry, skewedness is -0.145, which is very small indicates that the distribution is slightly negatively skewed, not much skewed. Hence the variable hostility is approximately distributed.

The above discussions show that the variables under investigation are not much deviated from normality and hence can be dealt as normally distributed. This made the investigator to continue with the parametric techniques of analysis like Pearson's product moment correlation, analysis of variance and multiple regression with stepwise analysis of regression.

## **SECTION II**

### **RELATIONSHIP OF VARIABLES**

- A. Relationship of IAS Dimensions*
- B. Relationship of IAS and Stress*
- C. Relationship of IAS and Hostility*
- D. Relationship among different dimensions of Stress*
- E. Relationship of Stress and Hostility*

To verify the hypothesis 1, a series of correlation were calculated among the variables under study namely, three dimensions of Personality (Inertia, Activation and Stability), Stress (Familial, Social, Environmental and Overall Stress) and Hostility; among the patients, normals and total sample, and are presented in Table IV.1.2.1, Table IV.1.2.2 and Table IV.1.2.3 respectively.

In the correlation matrix of the patients' sample (Table IV.1.2.1), out of the 28 correlations, 18 are significant correlations. Among these, 10 correlations are significant at 0.01 level and 8 are significant at 0.05 level. 10 correlations are in the negative direction where as others indicate positive relations among variables. The highest correlation was found between environmental stress and overall stress ( $r = 0.88$ ) the least correlation was between social stress and inertia ( $r = -0.03$ ).

Table IV.1.2.2 indicates the correlation matrix of normals' sample. In the table, 12 correlations are significant at 0.01 level and 5 are significant at 0.05 level. Out of these, 7 are negative correlations. The highest correlation is observed between inertia and stability ( $r = -0.81$ ) where as the least correlation is between social stress and hostility ( $r = .03$ ).

Correlation matrix of the total sample is presented in table IV.1.2.3. Out of the 28 correlations 23 are significant at 0.01 level and one is significant at 0.05 level. Out of these 24 significant correlations, 12 are in negative direction. The highest correlation is observed between environmental stress and overall stress ( $r = 0.87$ ) and the least correlation is between inertia and stability ( $r = 0.02$ ).

Table IV.1.2.1

**Intercorrelation Between the Variables of IAS Personality, Stress and Hostility  
(Patients' sample)**

<b>Variables</b>	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>	<b>Familial Stress</b>	<b>Social Stress</b>	<b>Environmental Stress</b>	<b>Overall Stress</b>	<b>Hostility</b>
<b>Inertia</b>								
<b>Activation</b>	-0.4824**							
<b>Stability</b>	-0.2124*	-0.7535**						
<b>Familial Stress</b>	0.0479	0.1703*	-0.2259*					
<b>Social Stress</b>	-0.0253	0.1939*	-0.1973*	0.4215*				
<b>Environmental Stress</b>	-0.1217	0.1458	-0.0713	0.5103**	0.6412**			
<b>Overall Stress</b>	0.0444	0.2036*	-0.1938*	0.7747**	0.8223**	0.8811**		
<b>Hostility</b>	-0.0646	0.3321**	-0.3220**	0.2442*	0.1575	0.1815	0.2347*	-

\* Significant at .05

\*\* Significant at .01

Table IV.1.2.2

Intercorrelation Between the Variable of IAS Personality, Stress and Hostility

(Normals' Sample)

	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>	<b>Familial Stress</b>	<b>Social Stress</b>	<b>Environmental stress</b>	<b>Overall Stress</b>	<b>Hostility</b>
<b>Inertia</b>								
<b>Activation</b>	0.1457							
<b>Stability</b>	-8.108**	-0.6959**						
<b>Familial Stress</b>	0.2438*	0.1592	-0.2764**					
<b>Social Stress</b>	0.1709	0.1470	-0.2158*	0.3283**				
<b>Environmental Stress</b>	0.1721	0.1310	-0.2088*	0.4332**	0.5155**			
<b>Overall Stress</b>	0.2554**	0.1871	-0.3030**	0.8029**	0.7387**	0.8057**		
<b>Hostility</b>	0.2236*	0.1198	-0.2329*	0.2510**	0.0304	0.0956	0.1773	-

\* Significant at .05

\*\* Significant at .01

**Table IV.1.2.3****Intercorrelation Between the Variable of IAS Personality, Stress and Hostility****(Total sample)**

<b>Variables</b>	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>	<b>Familial Stress</b>	<b>Social Stress</b>	<b>Environmental stress</b>	<b>Overall Stress</b>	<b>Hostility</b>
<b>Inertia</b>								
<b>Activation</b>	-.4632**							
<b>Stability</b>	.0216	-.8959**						
<b>Familial Stress</b>	-.0365	.4259**	-.46344**					
<b>Social Stress</b>	-.1018	.4212**	-.4261**	.4608**				
<b>Environmental Stress</b>	-.1643*	.4639**	-.4432**	.5545**	.6484**			
<b>Overall Stress</b>	-.1181	.5218**	-.5320**	.8241**	.8141**	.8747**		
<b>Hostility</b>	-.2638**	.7068**	-.6654**	.4367**	.3361**	.4065**	.4735**	-

\* Significant at .05

\*\* Significant at .01

## **A. RELATIONSHIP OF IAS DIMENSIONS**

### **Patients' sample**

The personality dimensions, inertia, activation and stability were studied among the heart patients (N=105) and they were correlated one another. All these factors are negatively correlated one another, significantly. Inertia is negatively correlated with both of the other personality dimensions, activation and stability. Stability and activation are also negatively correlated each other. The highest correlation is between stability and activation, that is significant at 0.01 level ( $r = -0.75$ ). Correlation between activation and inertia is significant at 0.01 level and correlation between stability and inertia is significant at 0.05 level. The highest and highly significant negative correlation between activation and stability, indicates that as stability increases activation also decreases among heart patients.

### **Normals' Sample**

When the relation among personality dimensions were studied, among the normals' sample (N=105), two are negative correlation and one is a positive correlation. Though inertia is positively correlated with activation, it is not found to be significant. Inertia, is negatively correlated with stability, and that is significant at 0.01 level. Which was the highest correlation among the personality variables ( $r = -0.81$ ). The correlation between stability and activation is negative in direction. Just like patients' sample, for normals sample, as stability increases activation and inertia, decreases.

### **Total Sample**

When the personality dimensions, were studied, for the total sample, (N =210), two correlations are negative, significant and one is positive. Inertia is negatively correlated with stability. Stability is negatively correlated with activation and that is the highest correlation

found among these variables. In the case of the total sample also, as stability increases, activation decreases.

While doing inter group comparison of correlation that are discussed above, it can be seen that, stability and activation are negatively correlated among both sample in the 0.01 level of significance. Among the personality factors correlations of the patients' sample, the highest correlation was between stability and activation.

Unlike the patients' sample, the correlation between stability and activation is negative in the normals' sample. So, as stability increases a proportionate increase in the activation characteristics cannot be expected in the case of normals. Stability is negatively correlated with inertia in both patients' and normals' samples and it is significant only in the patients' sample. Activation and inertia are positively correlated in the normals' sample, where as those factors are significantly negatively correlated in the patients' sample.

## **B. RELATIONSHIP OF IAS AND STRESS**

The personality variables of patients', normals' and total sample are correlated with stress. Stress was studied in 3 different dimensions, namely, familial, social and environmental. Overall stress was also calculated.

### **Patients' sample**

Inertia as well as activation is positively correlated with overall stress in the patients sample, where as stability is negatively correlated with overall stress (see table IV.1.2.1.).

In the three dimensions of stress studied, namely familial, social and environmental levels, in the patients sample stability is negatively correlated with all the three dimensions of stress and activation is positively correlated with all the three dimensions of stress. In the case of inertia, it is positively correlated only with familial stress and

negatively correlated with social stress and environmental stress. This indicates that, inertia increases only familial stress, where as activation increases and stability decreases all the levels of stress studied.

### **Normals' Sample**

Personality dimensions are correlated with overall stress and with three dimensions of stress, for the normals' sample also. Inertia and activation are positively correlated with overall stress where as stability is negatively correlated. The correlations of inertia and stability with overall stress are significant at 0.01 level.

While studying 3 dimensions of stress, inertia is positively correlated with all the three dimensions of stress, out of which correlation between inertia and familial stress is significant at 0.05 level.

Stability is negatively correlated to the three dimensions of stress and they are all significant. Correlation between stability and familial stress is significant at 0.01 level and correlation of stability with social and environmental stress are significant at 0.05 level. Though activation is positively correlated to the three dimensions of stress studied, none of them were found to be significant in the normals' sample.

Stability is found to decrease stress, where as activation and inertia increase stress. The highest correlation was found between, stability and overall stress.

### **Total Sample**

Among the 12 correlations between personality dimensions and stress, 8 correlations are significant at 0.01 level and one correlation is significant at 0.05 level.

Inertia and stability is negatively correlated to overall stress and three dimensions of stress, where as activation is positively correlated to

all the dimensions of stress. Correlation between stability and different dimensions of stress are significant at 0.01 level where as for inertia it is significant only with environmental stress, at 0.05 level. Activation and different dimensions of stress are also correlated at 0.01 level of significance, in positive direction. This indicates that among the personality dimensions studied activation increases stress, and stability decreases stress, where as inertia has got a no significant relation with stress.

While doing comparison among the samples, (patients' and normals') inertia significantly increases stress in the normals' sample, where as it is not a significant relation in the case of patients'. Inertia is positively related to the three dimensions of stress in the normals' sample where as it is negatively related with social stress and environmental stress in the patients' sample. Both in the patients' and in the normals' sample, activation has got positive relation with the three dimensions of stress studied, where as stability has got a negative relation. This indicates that stability characteristics decrease stress where as activation characteristics increase stress.

Activation is found to have positive relation with stress. Stress is found to be unhealthy over certain limits. Mathew's theory also supports this. According to Mathew (1995), people who are high in activation, won't properly cope up with stress. Activation is negatively correlated with stability in the patients' sample and people high in activation and stability are more prone to physiological level somatisation, according to Mathew (1995).

Familial stress and inertia are positively correlated. This indicates that characteristics like having external locus of control, low self confidence, no strong moral or definite values, intro-punitive nature, lack of emotional ties, inability to mix with others etc. will increase familial stress. Being withdrawn and submissive only increase family

stress, and that was readily evident both in the patients' and in the normals' groups.

### **C. RELATIONSHIP OF I.A.S AND HOSTILITY**

The relation between IAS personality dimensions and hostility were studied by calculating correlations; in the patients, normals, and total samples separately.

#### **Patients' Sample**

In the patients sample inertia and stability are negatively correlated with hostility, where as hostility, is positively correlated with activation. Correlations of activation and hostility; and stability with hostility are significant at 0.01 level.

In the normals' sample, inertia and activation are positively correlated with hostility, out of which correlation between inertia and hostility is significant at 0.05 level. Stability and hostility are negatively correlated at 0.05 level of significance.

In the case of total sample, inertia and stability are negatively correlated with hostility where as activation is positively correlated with hostility. More over, all these correlations are significant at 0.01 level.

In the comparison among the groups, it can be seen that, in the patients, normals and total sample activation is positively correlated with hostility, which indicate that activation increases with hostility. Correlation coefficient between activation and hostility is 0.33 among patients where as it's 0.12 among normals. Among the total sample this correlation is 0.71. Unlike the normals sample, this relation is significant in the patients' sample. Those who are high in activation, is explained as extrapunitive, sadistic, aggressive, impatient, rebellious etc. by the IAS rating scale. Those are also hostile characteristics, according to many researchers in the area of hostility. Activation characteristics are manifested in the patients studied.

Stability is negatively correlated with hostility in the patients', normals', and total sample. This indicates that higher the stability, lower will be the hostility. This relation is significant at 0.01 level in the patients' sample, where as, it is significant at 0.05 level in the normals' sample. As the IAS theory explains, high stability people will be controlled, restful, balanced, mature, open, warm, self sufficient, relaxed, loving, unselfish, altruistic and democratic etc. All these characteristics are not similar to hostility but just the opposite. In both patients' and normals' group, this relationship is maintained.

Inertia is negatively correlated with hostility in the patients' sample, where as it is positively correlated in the normals' sample, but none of them are significant.

#### **D. RELATIONSHIP BETWEEN OVERALL STRESS AND ITS DIMENSIONS**

Stress was studied in three different dimensions and they were familial, social and environmental dimensions. Stress was also studied as overall stress. Correlations were found among these subvariables.

All these subfactors of stress are correlated one another and also with overall stress, in the patients', normals' and total sample, in a positive direction and all these correlations are significant at 0.01 level. This indicates that all the subvariables of stress, will only help to increase overall stress and they will only contribute one another. None of them can be considered as healthy because all of them will only increase overall stress.

#### **E. RELATIONSHIP BETWEEN STRESS AND HOSTILITY**

Correlation between stress and hostility is positive in the patients', normals' and total sample. In the patients' sample correlation between overall stress and hostility is found to be significant at 0.01 level. Among the subfactors of stress studied, though all are positively

correlated with hostility, only familial stress shows a significant correlation, which is significant at 0.05 level.

In the case of normals' correlation between familial stress and hostility is significant at 0.01 level.

In the total sample overall stress, as well as the three subfactors of stress are significantly correlated with hostility at 0.01 level.

Stress is found to be increased along with hostility, as these variables have got a positive correlation. Studies conducted among heart patients by Johnson *et al.*, (1992) Maandiong and Bishop (1999), O'Malley *et al.*, (2001) Krantz *et al.*, (1996), Rozanki *et al.*, (1998). Gabbay *et al.*, (1996), Gullette *et al.*, (1997) etc had found that hostility and stress are related and in combination these factors will increase the risk of heart ailments, in different ways. In the case of the present sample unlike the normals' sample, patients' sample shows a significant relation between total stress and hostility, which indicate a stronger mutual influence between these factors in the patients sample. The present study provides a supporting evidence to the findings of the above mentioned researchers, as the patients studied in the present study, are heart patients.

It is evident from the results of correlation reported above that hypothesis 1 formulated for the study has been fully supported.

**SECTION III**

**COMPARISON BETWEEN NORMALS AND  
PATIENTS IN IAS, STRESS AND  
HOSTILITY**

The second general hypothesis is, "there will be significant difference between normals and CHD patients in the different dimensions of personality, stress and hostility". This hypothesis was attempted to verify.

The mean scores of normals' and patients' groups, on IAS, Stress and Hostility have been compared, using the test of significance of mean difference. The results are presented in Table IV.I.3.1.

**Table IV.I.3.1**

**Mean, Standard Deviation and 't' values of Variables Based on Normals and Patient Group**

Variables	Normals' sample (N = 105)		Patients' sample (N = 105)		't' Value
	Mean	SD	Mean	SD	
<b>Inertia</b>	24.40	9.37	16.25	5.75	7.50***
<b>Activation</b>	24.42	7.67	60.20	8.55	-31.94**
<b>Stability</b>	56.11	12.8	28.55	7.67	18.89**
<b>Familial Stress</b>	20.98	8.73	27.49	5.91	-6.32***
<b>Social Stress</b>	21.58	6.27	26.64	5.65	-6.14***
<b>Environmental Stress</b>	18.52	6.74	25.30	6.59	-7.33***
<b>Overall Stress</b>	61.09	17.07	79.43	15.09	-8.25***
<b>Hostility</b>	72.35	11.82	97.49	14.03	-14.04***

\*\*\*  $P < 0.001$ , \*\*  $P < 0.01$

From the table IV.1.3.1 it can be seen that there is significant mean difference in all the variables studied, between normals' and patients' groups.

### **Normals and Patients on I.A.S**

To test the subhypothesis that, normals' and heart patients' differ significantly, in terms of IAS personality dimensions - Inertia, Activation and Stability. 't' test was conducted, between normals' and patients' personality scores. Table IV.1.3.1 indicates the mean, standard deviation and t value of the analysis.

Inertia, Activation and Stability are found to be differ significantly between normals' and patients' samples at 0.01 level. Normals has got significantly higher mean scores for inertia and stability and their mean scores are 24.40 and 56.11 respectively; where as for the patients' sample, the mean scores for inertia is 16.25 and that for stability is 28.55.

Inertia characteristics like low self confidence, suggestible nature, venturing, slow, intropunitive, external laws of control etc. are readily more in the case of normals. Due to significantly high stability, normals will be controlled, restful, detached in action, fast or slow according to situational demands punctual or philosophic, practically efficient and peaceful.

Meanwhile the mean difference of activation score is also significant at 0.01 level. The higher score for activation was attained by the patients' sample. The patients' group significantly acquires characteristics like being analytical rash, ready to take risk, greedy, competitive, aggressive, extrapunitive, unable to remain alone or silent, having conflicts etc. All these characteristics, along with low inertia and stability will increase one's stress so that, person with high activation has got a chance of getting psychosomatic difficulties, especially heart disease. According to the IAS theory of Mathew (1995), activation and stability will be high among patients having psychosomatic disorders, especially heart disease. The present study

gives a supporting empirical evidence for one of the Mathew's IAS theoretical assumptions, which relates between IAS and psychosomatic disorders. Here, in the present study, group with high activation is the sample of heart patients, as a supporting evidence for the theory of Mathew (1995).

Preetha (1999) had reported a similar evidence from a study conducted to explore IAS traits of patients with skin disorders; in which high activation and stability were reported in the patients.

### **Normals and Patients on Stress**

To verify the second sub hypothesis that 'heart patients experience significantly higher levels of stress, compared to normals', 't' test was done and presented in table IV.1.3.1. The t value is found to be significant at 0.01 level.

Stress was studied in different dimensions namely familial, social and environmental. Overall stress was also calculated and studied.

For familial stress, social stress, environmental stress and overall stress, the t values are significant at .001 level. The mean difference is found to differ significantly between patients' and normals' sample.

For familial stress, the patients group has got a mean score of 27.49 where as it is 20.98 for the normals' sample. The normals' sample tends to be higher in the characteristics like sense of humour, consideration for family members, respect for changing needs of his family etc. They will allow themselves to be loved by the family members as a person. Accept and like who they are to be open about their likes, needs and emotions and they will encourage

an open, honest and understanding family atmosphere, build on good communication.

In a similar way, as the patients' sample is significantly higher in the familial stress, such group may have unreasonable demands and high expectations, about themselves or family members which may cause stress for him. Moreover, problems like conflicts among family members, lack of responsibility or ill health of family members may create stress in them.

Higher level of familial stress is reported in the present study among the patients' sample compared to normals'. The mean score for social stress of the patients' sample is 26.64 and that of the normals' sample is 21.58. In the case of social stress also the patients group is significantly higher.

As a social being, anything that happens in the society can effectively create a vibration in the individual, but for some it will be more stressful than that of others. For example, social areas with high levels of unemployment were found to be under great stress than areas with low levels of unemployment by Taylor (C.F. Shibu, 1992). Social events like geographic mobility, migration etc also are viewed as stressful circumstances.

In the case of the present study heart patients are found to have higher stress from the social factors compared to normals. Holmes and Rahe (1967), Barber and Eccles (1992) etc. had conducted researches in the area of stress and according to them familial as well as social stress will ultimately affect individuals health status and increased stress can lead to negative health consequences. The present study is exploring the stress of heart patients, and their social stress is found to be high in comparison with the normals.

In the comparison between patients' and normals' sample, in terms of their environmental stress, the patients' sample has got a significantly higher score, compared to the normals', because the t value is significant at .001 level. The mean score of environmental stress for the patients' sample is 25.30 and that of the normals' sample is 18.52.

For the same kind of environmental factors as stressors, the heart patient will experience, more stress compared to the normals. Environmental factors like busy town life, congested neighbourhood, noisy environment etc will create increased stress among heart patients. Mc.Millen *et al.*, 2000, Reich (1995) Kimerling *et al.*, (2000), Briere & Elliot (2000) etc had conducted researches in the area of environmental stress, and had found that individuals who were exposed to such stressors are prone to develop, traumatic stress disorders, if the stressors are beyond one's control. The effect may be long lasting also. In the present study, heart patients were found to experience more environmental stress, compared to normals, though assessments were not done about disasters beyond control, like natural disasters.

In terms of overall stress also, patients' and normals' sample differ significantly. The mean score of patients' sample is 79.43 and that of normals' sample is 61.09. The patients' sample has got a significantly higher stress compared to normals'. Researchers like, Rahe *et al.*, (1974) Rahe and Lind (1971), Greene *et al.*, (1974) Bhargava *et al.*, (1982) etc. Recent researchers like Terry (1992), Jindal *et al.*, (1994), Sheps *et al.*, (1995), Allison *et al.*, (1995) Glossman *et al.*, (1996), Kop *et al.*, (1997, 2001), Barnett *et al.*, (2000), Kanel *et al.*, (2001), Jain *et al.*, (2001) etc. had conducted stress related studies among patients having cardiovascular disorders and had found that stress among heart patients is higher

than that of normals. The present study is in line with those findings.

### **Normals and Patients on Hostility**

To verify the 3rd subhypothesis that the 'heart patients will be more hostile than normals', the mean scores of hostility, were compared. The mean, standard deviation and 't' value are given in table IV.1.3.1. The mean score of hostility for the patients' sample is 97.49 and that of the normals' sample is 72.35. The heart patients' sample is significantly higher in hostility than normals' (Significant at 0.01 level).

The variable hostility assesses to make susceptibility to respond to a broad range of frustrating circumstances with varying degrees of anger, irritation, distrust, contempt and resentment.

The variable hostility was studied in relation to many psychosomatic disorders, like hypertension by Jammer *et al.*, (1993), Alexander and Flagg (1965), etc. high cholesterol levels (Steegmans *et al.*, 2000) and Vandervoort (1995) had assessed the negative consequences of hostility upon physical health

A number of researchers, had found that hostility is high among heart patients, Collington *et al.*, (1986), Weidner *et al.*, (1989), Helmer and Ragland (1991), Tava *et al.*, (1992), Helmon *et al.*, (1993) Lane *et al.*, (1994), Basefoot *et al.*, (1994), Julkunen *et al.*, (1994), Felsten (1995), Helmers *et al.*, (1995) Gabbay *et al.*, (1996) etc had made such kinds of studies Kop (1997), Suarez (1998), Chipley (2000), Niaura (2000), Denker *et al.*, (2000) Spiro and Williams (2002) Aldridge (2003), Smith (2003) Eaker *et al.*, (2004), Engebreston (2004) Stoney and Engebreston (2004) are the new researchers in this field, who had studied the physiological responses

which will increase the chances for Coronary Heart Disease, in connection with hostility. All the above studies had reported, a high rate of hostility among heart patients, which is a deadly emotion that affects heart. The present study also had reached in a similar finding.

To conclude, all the three dimensions of IAS, Stress and Hostility significantly vary between two samples and activation familial, social environmental and overall stress and hostility are found to be high among heart patients. Hence, the second hypothesis is accepted.

## **SECTION – IV**

# **PERSONAL AND DEMOGRAPHIC VARIABLES**

- \* *Gender*
- \* *Age*
- \* *Religion*
- \* *Locality*
- \* *Marital Status*
- \* *Occupational Status*
- \* *Perception of Health*

A person's health is influenced not only by his psychological factors, but also by his personal characteristics and these in turn affect his psychological well being. As health is an important aspect of our total life, it becomes important to examine his personal and demographic variables like age, education, occupation, locality of living, religion, marital status perception of health status etc.

As a researcher of behavioural science, the investigator had attempted to explore the dependent variables under study, namely stress and hostility, for the total population (N = 210) in terms of the personal and demographic variables.

According to the findings from these analyses, further treatment of the investigation was planned. The data, as a whole (for the total population) was treated for this kind of analysis and the grouping were done for the forthcoming analyses, wherever necessary, in accordance with the hypotheses formulated.

In order to study the influence of different personal and demographic factors, on health and other related psychological variables, a series of analysis of variance was carried out.

For this purpose, the sample is sub-divided into groups, on the basis of each of these factors. (See tables III.1.2. TO III.1.8). Although arbitrary, the groupings are accomplished by some meaningful criteria. The mean scores then obtained by different subgroups in the case of each factor are compared in each of the ANOVA'S. Whenever an ANOVA yielded significant F value, multiple comparisons of the group means are accomplished by means of the Scheffe test. To test mean differences of two groups, 't'-test was performed.

## Gender, Stress and Hostility

To compare between gender, in terms of stress, and to test the hypothesis that 'there will be significant difference between male and female subjects, on the variable stress', t test was used. Means Standard deviations and t values of different dimensions of stress are given in table IV.1.4.1.

**Table IV. 1.4.1.**

**Mean, Standard Deviation and t values of Variables  
of Groups Formed on the Basis on Gender**

Variables	Group 1		Group II		't' value
	Mean	SD	Mean	SD	
<b>Familial Stress</b>	23.92	6.67	24.33	8.54	-0.35
<b>Social Stress</b>	23.92	6.14	24.19	6.59	-0.25
<b>Environmental Stress</b>	22.18	7.43	21.83	7.54	0.29
<b>Overall Stress</b>	70.02	17.52	70.33	18.87	-.11
<b>Hostility</b>	81.24	17.46	86.07	18.15	-1.69

From the table, it can be seen that none of the 't' values (familial, social, environmental or overall stress) are significant. This indicates that the mean difference between male and female subjects, in the scores of stress is not found to be significant, or irrespective of gender, subjects had experienced stress.

Studies which did gender wise comparison in stress, had given variety of findings. There is ample evidence for gender differences in response to stressful life events. Karanci *et al.*, (1999) found greater levels of stress for women than for men after natural catastrophe.

Women tend to have tighter net works that enable them to seek support from many sources, where as men often solely rely on their spouses as support providers (Greenglass (1982), Simon (1995). Researchers like Carver *et al.*, (1985), Contrada (1988) etc says that males are more reactive to stress than females, though there are many inconsistencies in their outcomes. Health Psychology researchers like Wilson *et al*, (1995) Miller *et al.*, (1995) argue that socio-cultural and gender differences in stress experience and reactivity to stress make male more prone to heart disease, who experience higher levels of stress. They are also of the opinion that men has larger social network, than women and that make them experience lesser social stress. Agarwal (1994), had conducted studies in workingwomen and found that they experience higher stress due to multiple roles. Prakarh (1991), Reddy and Ramamurthi (1990) etc had reported that there is no gender difference in stress as well as coping strategies. The present study had also found that stress is unaffected by gender. According to Greenglass (1982) women experience more stress than men.

The next hypothesis was that, 'there will be significant difference between male and female on hostility'. To verify this, t test was used between means of the hostility scores of male and female subjects of total sample (N = 210). Means, Standard deviations and t value are given in table. IV.I. 4.1. The 't' value is not found to be significant at any level of confidence. So it can be interpreted that hostility is unaffected by gender.

Wade *et al.*, (1994) had found that men are more hostile than women. Eaker *et al.*, (2004) Stoney and Engebretson (2004) have made recent studies, which had revealed gender differences in hostility. Both of the studies revealed the increased chances of experiencing higher levels of hostility among males than females.

The studies had given more importance for the physiological aspects of hostility, like changes in blood chemistry and had conducted among sample of heart patients. But such a gender difference couldn't be revealed by the present study. Helmers and Ragland (1991) in their study among CAD patients had found that there is no significant difference between males and females in their hostility.

### **Age, Stress and Hostility**

As described earlier, the entire sample (N = 210) is divided into 3 groups, in terms of age of the subjects as follows: Group I (age below 45 years); Group II (age 46-60 years); and Group III (age above 60 years). Later the scores obtained by each of these age groups in each of the study variables are subjected to one way ANOVA. The F values yielded in this analysis are summarized in table IV.1.4.2. It can be seen from the table that four F values are significant at 0.01 levels and one is significant at 0.5 levels.

**Table IV. 1. 4.2.**

**F values of Overall Stress and its Dimensions and Hostility for Groups Formed on the Basis of Age**

Variables	Between groups		With in groups		F
	Sum of square	Mean squares	Sum of squares	Mean squares	
<b>Familial Stress</b>	1298.29	649.15	12477.27	60.28	10.77***
<b>Social stress</b>	295.22	147.61	8453.26	40.84	3.61*
<b>Environmental stress</b>	957.22	478.61	10793.24	52.14	9.18***
<b>Overall stress</b>	7660.99	3530.50	64589.12	312.02	11.31***
<b>Hostility</b>	6048.91	3024.45	62153.87	300.26	10.07***

\* .05 level of significance,

\*\*\* .001 level of significance

All of the F values (table IV.1.4.2), related to the stress and hostility are found to be significant. The significant F values were found to the subvariables of stress; namely for familial stress ( $F = 10.77, P < .001$ ), social stress ( $F = 3.61, P < 0.05$ ) environmental stress ( $F = 9.18, P < 0.001$ ) and overall stress ( $F = 11.31, P < 0.001$ ). Further examination by Scheffe test table IV.I. 4.2) shows the following details and table IV.I. 4.3 give means and standard deviations of different groups.

**Table IV. 1. 4.3.**

**Mean and Standard Deviation of the Variables for Various Groups Formed on the Basis of Age**

Variables	Group 1 Age 45 & below		Group II - Age 46-60 years		Group III - Age 61 and above	
	N = 50		N = 95		N = 65	
	Mean	SD	Mean	SD	Mean	SD
<b>Familial stress</b>	20.56	8.24	24.05	8.57	27.32	5.96
<b>Social stress</b>	22.36	7.20	24.02	6.47	25.58	5.55
<b>Environmental stress</b>	18.54	8.35	22.02	6.85	24.35	6.80
<b>Overall stress</b>	61.46	20.73	70.09	17.58	77.26	15.04
<b>Hostility</b>	77.10	16.89	84.42	17.81	91.68	16.94

Scheffe test shows a significance of mean difference among different age groups in terms of the stress variables. In the case of familial stress, group I (below 45 years) differs significantly from both group II (age between 46-60years) and group III (age above 61 years). Here, it is the group III (mean = 27.32) that scores highest than either group II (mean = 24.65) or group I (mean = 20.56).

In the present stature of the sample, relation between age and familial stress is complex. Stress is found to be high in the high age group and higher age groups significantly differs from the lower age groups. More over, for the lower age group, there may be lesser familial stresses to handle with, so as to get lower scores for stress, which significantly differs from other groups. Generally one would expect that, as the person grows older, he would have greater family stresses to deal with and become family oriented, which may give chance to increase their family stress.

Youngsters may have healthy family interactions, which facilitate their emotional and general adjustment, so that their family related stress is low. Healthy familial nurture, cohesion and interaction encourage members to extend help and support, to act openly and express feelings, share responsibility and to develop self-sufficiency. Trusting environment and mutual satisfying relationship will help to decrease stress (Anna 2004).

According to Colerick (1985) during old age only a few people with much hardiness can handle the negative life events, properly, so that higher levels of stress is usually reported during old age.

Social stress also has got significant F value, but it is significant only at 0.05 levels. Different age groups differ significantly in terms of social stress. Later Scheffe test gives the details about the age groups, which differ between them significantly. Here there is significant difference between group I, (age below 45 years) and group III, (age above 61 years) only, the mean scores of social stress for group I is 22.36 and that of group III is 25.58. Here also, higher aged group has significantly higher social stress.

Researchers like Sarafino (1998) argue that the living conditions and social network of the elderlies make them more prone

to have higher social stress. He had reported that social dealing in the youngsters will usually provide friendship as well as social support which will help to decrease their stress.

Those individuals who tend to seek interaction with others are more likely to give and receive support than those who do not. Those who experience less stress with their lives and family are less likely to be avoided by others in the society. (Nezu, *et al.* 2003). In the case of the present sample, familial as well as social stress is found to be significantly less in the group I (age below 45 years).

From the highest score of social stress for group III, it can be interpreted that those elderlies are in need of social support, but researchers in this area, like Wortman & Dunkel (1987) suggest that those in greatest need of social support may be least likely to get it, which again helps only to increase their social stress.

The one way analysis of variance shows a significant F value for environmental stress indicate that different age groups differ among them in terms of the environmental stress.

Analysis of environmental stress by age, through Scheffe test, indicates a significant means difference of group I, (age below 45) from both group II, (age between 46 and 60) and group III, (age above 61 years). It is the group III (mean = 24.35) which scores highest than either group I (mean = 18.54) or group II (mean = 22.02). The higher age group's environmental stress is significantly higher than that of the younger age groups. The environmental stressors will be more hazardous to the aged people in comparison to the youngsters.

Many studies were reported about the increased environmental stress in old people, but much of them were concentrated in the effect of natural or technological hazards/disasters like earth quake, bomb blasting, war, flood etc. and those stressors were beyond the subjects' control. Though the present study had not attempted to

study those disasters, environmental stress were found to be high among old people.

In the ANOVA table IV.1.4.2 of overall stress, also F value is found to be significant, so that different age groups, differ significantly among them, in the overall stress experience. Scheffe's test was used to study among the different age groups.

Scheffe analysis indicates significant mean difference of overall stress among different age groups. As Table IV.I. 4.3. indicates, the highest mean score is attained by group III, (age above 61) (mean = 77.26) where as the group II, (age between 46 and 60) has got a mean score of 70.09 for overall stress, and that of group I (age below 45 years) is 61.46. All the mean difference among these groups are significant. Among the mean scores comparison, it can be seen that, higher stress is found in the higher age group. This may be due to their emotion based way of coping (Folkman *et al.* 1987), lack of personal control (Rodinplanger 1977) or lack of social support (Boradhead *et al.* 1983) or due to many other reasons. In the present study the three dimensions of stress are found to be high in the higher age groups (above 61 years) and so overall stress also.

In the empirical findings available about the influence of age up on stress, researchers and theorists argue that, successful coping diminished with age so that elderly people experience more stress than younger ones (Torres 1995). Ben Zur and Zeidner (1991) etc., had reported contradictory evidences (as youngsters have more stress than older people), but their studies were related to disasters and wars, as the study was limited to such stressors.

Table IV.I. 4.2. indicates the F value yielded through one-way analysis of variance of hostility scores of total sample among different age groups, which was used to verify the hypothesis that hostility is affected by age. The F value is found to be significant at 0.01 level of

significance. Scheffe test was used to analyze hostility among different age groups. The highest mean hostility was 91.67, which was attained by group III (age above 61 years) and the least hostility mean score was 77.1 and that was attained by group I (age below 45 years). The middle group (group II) has got a mean score of 84.92 for hostility. Scheffe's test indicates that all the subgroups differ significantly among them. Older group has a significantly higher hostility in comparison to the youngsters' groups. The youngest age group (Group 1) has a significantly lower level of hostility compared to other groups.

### **Religion, Stress and Hostility**

To test, whether people of different religion differ among themselves with respect to stress and hostility, analysis of variance was done among different religious believers of the sample. Table IV. 1.4.4 gives the details of the analysis.

**Table No. IV. 1. 4.4.**

#### **F values of Overall Stress and its Dimensions and Hostility for Groups Formed on the Basis of Religion**

<b>Variables</b>	<b>Between groups</b>		<b>With in groups</b>		<b>F</b>
	<b>Sum of squares</b>	<b>Mean squares</b>	<b>Sum of squares</b>	<b>Mean squares</b>	
<b>Familial Stress</b>	6.90	3.45	13768.66	66.51	0.052
<b>Social stress</b>	33.27	16.64	8715.21	42.10	0.395
<b>Environmental stress</b>	352.94	176.47	11397.52	55.06	3.205*
<b>Overall stress</b>	549.06	274.53	71101.06	343.48	0.799
<b>Hostility</b>	137.14	68.57	68065.64	328.2	0.209

\* .05 level of significance

In the table IV .1.4.4, F values are not found to be significant except for environmental stress, which is significant only at 0.05 level. This indicates that, irrespective of religion, people experience stress (familial stress, social stress and overall stress) and hostility. Religion doesn't have do any influence up on stress and hostility. For environmental stress, highest score was attained by Muslims, then comes Christians, and least score was for Hindus. The details means are given in Table IV. 1. 4.5.

**Table IV. 1. 4.5**

**Mean and Standard Deviation of Variables of Various Groups  
Formed on the Basis of Religion**

Variables	Christian		Hindus		Muslims	
	N = 103		N = 51		N = 56	
	Mean	SD	Mean	SD	Mean	SD
<b>Familial stress</b>	24.42	9.06	24.08	8.05	24.04	6.24
<b>Social stress</b>	24.51	6.50	23.69	6.40	23.75	6.55
<b>Environmental stress</b>	22.43	7.83	19.67	6.74	23.02	7.23
<b>Overall stress</b>	71.36	18.96	67.43	18.36	70.80	17.88
<b>Hostility</b>	85.57	18.61	83.57	19.02	84.96	16.32

Present study partially confirms the findings reported by Bhogle *et al.*, (1978) who report that Muslim women as having maximum number of problems when compared to women from Hindu & Christian communities, so that they experience higher levels of stress.

### Locality, Stress and Hostility

The total population was selected from different locality, namely village and town. To verify the subhypothesis, that 'subjects from village and town significantly differ in stress,' t test was conducted. Three different dimensions and overall stress were studied, and assessments were done about of the significance of mean difference. Mean, standard deviation and t values are given in table IV.1.4.6.

**Table IV. 1. 4.6.**

**Mean, Standard Deviation and t value of Variables of Groups Formed on the Basis of Locality**

Variables	Groups		Town locality subjects		Village Locality subjects		't' value
			(N=47)		(N = 163)		
	Mean	SD	Mean	SD			
<b>Familial stress</b>	21.04	6.24	25.15	8.38	-3.66 ***		
<b>Social stress</b>	21.47	5.97	24.87	6.42	-3.38 ***		
<b>Environmental stress</b>	18.64	6.57	22.86	7.50	-3.75***		
<b>Overall stress</b>	61.15	16.23	72.88	18.35	-4.24***		
<b>Hostility</b>	80.25	15.69	86.27	18.52	-2.22*		

\* .05 level of significance

\*\*\* .001 level of significance

For familial, social, environmental and overall stress, the 't' values are found to be significant at 0.001level. That is the mean differences are found to be significant, at 0.01 level. From table IV.I. 4.6. it can also be seen that the mean scores for familial, social, environmental and overall stress for the village locality sample

(25.15, 24.87, 22.86, 72.99 respectively) are higher than that of the town locality sample (21.04, 21.47, 18.84 and 61.45 respectively). This result reveal that village locality people experience higher level of stress than town locality people, in the present study.

Tripathi (1996) had pointed out that quality of surrounding is an important moderator of stress. Pandey and Srivastava (2000) and Pattanayak *et al.* (1997) say its' more affected by the type of family where as Terry (1992) argue it's more affected by family relations'. Lane and Ahamed (1991) had proved that urban and rural people are alike in terms of stress.

't' test was used to verify the hypothesis, "there will be significant difference between village and town locale in terms of hostility. Mean, standard deviation and 't' value are given in table IV.1. 4.6.

The 't' value is found to be significant at 0.05 level, so that mean difference in hostility between village and town locality people is significant. The mean hostility score for town locale is 80.25 and that of village locale is 86.27. People in town have an advantage over village people in their hostility. The variable hostility is rarely been attempted to study in relation to the demographic variable like locality of living, but theoretically social challenges are found to increase hostility and anger.

### **Marital Status, Stress and Hostility**

According to marital status the total group is divided into two (married and unmarried) and the variables were studies by comparison between these groups. To verify the hypothesis that ' there will be significant difference between married and unmarried sample in stress and its variables; t test was conducted between the

stress scores of married and unmarried subjects. The details are given in table IV.1.4.7.

**Table IV.1.4.7.**

**Mean, Standard Deviation and t value of Variables for Groups Formed on the Basis of Marital Status**

Variables	Married subjects N = 191		Unmarried subjects N = 19		't' value
	M	S.D	M	S.D	
<b>Familial stress</b>	25.25	7.54	14.05	6.65	6.90*
<b>Social stress</b>	24.46	6.34	20.52	6.76	2.44*
<b>Environmental</b>	22.44	7.42	16.63	6.29	3.77**
<b>Overall stress</b>	72.15	17.59	51.21	17.15	5.07**
<b>Hostility</b>	86.15	17.7	72.57	17.47	3.23**

\* significant at 0.05 level

\*\*significant at 0.01 level

Mean familial stress of the group I, (married subjects) is 25.25 where as that of the group II (unmarried subjects) is 14.05. The t value is found to be significant, at 0.01 level. Married subjects have got a significantly higher familial stress compared to unmarried subjects.

In the case of social stress, t value is found to be significant at 0.01 level, when the scores were compared between married and unmarried sample. For group I, the mean score for social stress is 24.47 and that of group II is 20.53. This clearly indicates that the married subjects have got significantly higher social stress, compared to unmarried subjects.

Environmental stress is studied by comparing between married and unmarried subjects. The mean environmental stress for the group I, is 22.44 and that of group II is 16.63. The t value is found to be significant at 0.01 levels. This indicates that, the married subjects have got significantly higher environmental stress, compared to the unmarried subjects.

While comparing the over all stress of the married and unmarried subjects, significantly higher mean of overall stress score was attained by the married subjects (M=72.15) compared to unmarried subjects (51.21). The mean difference is found to be significant at 0.01 level.

From the results it can be interpreted that married subjects take the familial, social and environmental stressors much into consideration, which evoke more stress among them. It may be because they deal with more familial, social and environmental problems, related to their family.

Married subjects experience more familial stress, just because they engage more into family related problems and conflicts. Though being single has got many disadvantage, researchers like Girdano *et al.*, (1985) pointed out that it has advantages like, privacy, freedom for personal matters, lack of tied schedules, generally not being responsible to anyone etc. which gives enjoyment of the feeling of being in control of one's environmental stress are not been widely studies in the Kerala setting, in relation to marital status.

Considering their hostility scores, by doing 't' test, comparisons were made to test the hypothesis that 'there will be significant difference between married and unmarried sample in Hostility'. The details are given in table.IV.1.4.7. The mean score for hostility, for the married subjects is 86.15 where as that of the

unmarried subjects is 72.58. The 't' value is found to be significant at 0.01 levels. This indicates that the married subjects have got a significantly higher hostility compared to other.

### **Occupational Status, Stress and Hostility**

Total sample included working, nonworking people and some had retired from their work. Total sample were classified into 3 groups. Group I working group; Group II- non-working group; and group III-retired persons, so as to study whether stress and hostility are affected by their occupational status. One way analysis of variance was used (Table IV.1.4.8 and IV.1.4.9) to study the effect, and F value yielded is not found to be significant, at any level in all the cases of stress. So occupation lack of occupation, and in no way affect the stress scores of the population studied.

**Table IV.1.4.8**

#### **F -Values of Overall Stress and its Dimensions, and Hostility for Various Groups Formed on the Basis of Occupational Status**

Variables	Between Groups		Within Groups		F
	Sum of squares	Mean Squares	Sum of Squares	Mean Squares	
<b>Familial Stress</b>	88.61	44.30	13696.96	66.12	0.67
<b>Social Stress</b>	53.84	26.92	8694.64	42.00	0.64
<b>Environmental Stress</b>	29.62	14.81	11720.84	56.62	0.26
<b>Overall Stress</b>	476.91	238.46	71173.20	343.37	0.35
<b>Hostility</b>	230.57	115.28	67972.21	328.37	0.35

**Table IV.1 4.9**

**Mean and Standard Deviation of Variables for Various Groups  
Formed on the Basis of Occupational Status**

Variables	Unemployed N = 83		Employed N = 80		Retired N = 47	
	Mean	SD	Mean	SD	Mean	SD
<b>Familial Stress</b>	23.59	9.15	25.04	7.55	24	7.08
<b>Social Stress</b>	23.51	6.84	24.64	5.92	24.28	6.74
<b>Environmental Stress</b>	21.47	7.19	22.31	7.90	22.02	7.44
<b>Overall Stress</b>	68.57	19.27	71.99	17.80	70.30	18.48
<b>Hostility</b>	86.22	16.81	84.15	17.76	83.96	20.79

Quick and Quick (1984), Hay and Oken (1985) Steptoc *et al.*, (1993) etc had reported high levels of stress among working class by pointing out several aspects of job strain, but the present study gives a contradictory evidence, that working and nonworking/retired group does not differ in their stress. Stress is unaffected by occupational status in all the dimensions studied, namely; familial, social, environmental and overall stress.

Likely, one way ANOVA is used to study the effect of occupational status, upon hostility and here also, the 'F' value is not found to be significant. So the occupational status is not affecting hostility in the case of the total population, studies which relate between hostility and occupation status are not widely reported.

### **Perceived Health, Stress and Hostility**

During the assessment of stress, in the S.S. Inventory, as the one of the items to assess personal details, investigator had asked the subject, how do they feel about their health status, (See appendix 3) without considering whether they were patients or normals. Five

different options like "very bad, bad, asked to satisfactory good and very good" were provided and the subjects were asked to respond according to their feelings about their health status.

Information about the perception of health status of the subjects were collected and accordingly the total subjects classified into three groups. Group I, who perceived their health status as very bad and bad, Group II, who perceived their health status as satisfactory and Group III include subjects who perceived their health status as good and very good. These groups were used to do inter group comparison of stress and hostility.

To verify, whether the subjects who perceive their health status differently, differ in their stress experience, one way ANOVA was used. The details are given in table IV.1.4.10. ANOVA was done for all the dimensions of stress. F value yielded is found to be significant, at 0.001 level, later Scheffe test was used to study among the groups.

**Table IV.1.4.10**

**F-values of Overall Stress and its Dimensions, and Hostility for Various Groups Formed on the Basis of Perceived Health Status**

Variables	Between Groups		Within Groups		F
	Sum of squares	Mean Squares	Sum of Squares	Mean Squares	
<b>Familial Stress</b>	1424.49	712.25	12351.08	59.67	11.94***
<b>Social Stress</b>	698.39	349.20	8050.09	38.89	8.98***
<b>Environmental Stress</b>	1288.15	644.07	10462.31	50.54	12.74***
<b>Overall Stress</b>	9630.23	4815.12	62019.88	299.61	16.07***
<b>Hostility</b>	10701.19	5350.59	57501.59	277.78	19.26***

\*\*\* Significant at .001 level.

For familial stress, Scheffe test indicates a significant mean difference (table IV. 1. 4. 11) for group I, from group II and group III. The mean score for group I, II & III for familial stress, were 28.78, 24.11 and 21.68 respectively. Those who perceive their health as favourable, significantly differ in familial stress from those who perceive it as bad.

For social stress, Scheffe test indicates that group I, significantly differs from group II and III. The mean scores of group I, II and III are 27.6, 23.1 and 23.22 respectively. Social stress was found to be highest among the group which perceived their health as bad.

**Table IV.1.4.11.**

**Mean and Standard Deviation of Variables for Various Groups on the Basis of Perceived Health Status**

Variables	Group I N = 45		Group II N = 89		Group III N = 76	
	Mean	SD	Mean	SD	Mean	SD
<b>Familial Stress</b>	28.78	5.25	24.11	8.66	21.68	7.78
<b>Social Stress</b>	27.60	5.14	23.10	6.21	23.22	6.83
<b>Environmental Stress</b>	26.27	7.36	21.75	6.59	19.53	7.53
<b>Overall Stress</b>	82.64	14.74	68.97	17.24	64.43	18.73
<b>Hostility</b>	97.40	14.71	84.56	18.58	77.96	15.32

The mean scores and standard deviation of the three groups are given in table IV.1.4.11. The mean scores of group I, II and III are 26.27, 21.75, and 19.53 respectively. In the case of environmental stress, the Scheffe test indicates that group I differs significantly from group II and III.

For overall stress also group I is found to differ significantly from group II and III. The mean scores were 82.64, 68.96 and 64.43 for group I, II and III respectively. The over all stress is higher for subjects who perceive this health as unfavourable and they differ significantly from those who perceive it as good or satisfactory.

To verify the hypothesis, 'there will be significant difference among the various groups of perceived health in their hostility', one way ANOVA was used. The details are given in Table IV.1.4.10.

The F value is found to be significant at 0.01 level. So the groups differ among them significantly. The mean scores for group I, II and III are 97.40, 84.56 and 77.96 respectively. The Scheffe test indicates that group I, significantly differs from group II and III; and group II and III differs significantly. Those who perceive their health status as bad, has significantly higher levels of hostility from those who perceive it as satisfactory or good. It denotes that subjects with positive perception of health status has low levels of hostility.

Perceived severity of symptoms were studied in relation to the effectiveness of intervention (Janz & Becker, 1984). Health and well being is the area of interest many researchers (Rijkn *et al.*, 1995; Leiker & Hailey, 1989). In the present study though the actual health status is studied as dividing the total sample into heart patients' and normals' sample, their self perception about their health status in general was also studied and that was used to explore its relation with stress experience and hostility.

All these analyses reported in the present section show that most of personal/demographic variables had influence never Stress and Hostility. So it can be concluded that, the hypothesis may be accepted to certain extent.

## **SECTION V**

# **INTERACTION BETWEEN IAS DIMENSIONS AND STRESS AND ITS VARIABLE**

The present study had attempted to explore the interaction effect of stress dimensions up on patients and normals samples; and IAS personality dimensions, to verify the hypothesis there will not be any significant interaction between the classificatory factors of personality , and groups in the variable stress and its dimensions. When the three personality dimensions were used to categorise the subjects of patients and normals sample. There were subjects who dominated in their Inertia, activation and stability, among the normals sample where as patients groups belonged only to activation and stability dimensions. There was no patient subjects with dominant inertia (Table IV.1.5.1).

**Table IV.1.5.1**

**Classification of the Sample Based on Dimensions of IAS  
Personality and Groups (Normals and Patients)**

<b>Personality Dimensions</b> <b>Group</b>	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>	<b>Total</b>
<b>Group I (Normals)</b>	5	2	98	105
<b>Group II (Patients)</b>	00	102	3	105
<b>Total</b>	5	104	101	210

**Overall Stress and IAS Dimensions**

Scores on the three dimensions of stress and overall stress were subjected to two way ANOVA, using groups (Patients and Normals) and Personality dimension (Inertia, Activation and Stability). The results thus obtained are given in the table IV.1.5.1. The mean scores corresponding to each dimensions are given in table IV 1.5.3. to table IV.1.5.6 Histograms representing the mean scores relating to the different variables are presented in figure.1 to 6. Each factor's result can be discussed as follows :

Analysis of variance of the 2 x 3 factorial design for stress (familial) has been summarised in the table IV.1.5.2. Groups (Normals and Patients) and personality dimensions (Inertia, Activation and Stability) have been considered as the independent variables which function as main sources of variation.

From table IV.1.5.2 it can be seen that neither of the main sources of variance namely groups ( $F = 0.993$ ,  $df = 1/209$ ,  $P > 0.05$ ) and personality dimensions ( $F = 2.52$ ,  $df = 2/209$ ,  $P > 0.05$ ) do not significantly differentiate the overall stress. Further the interaction between the two independent variables also has no significant effect, ( $F = 2.14$ ,  $df = 1/209$ ,  $P > 0.05$ ) on overall stress.

Although it is instructively appealing to conclude that groups and IAS differ in stress, the present data do not support such a notion. It may be due to the cell missing, while studying the analysis of variance, due to lack of patients in inertia group.

Of the main effects, groups ( $F = 0.80$ ,  $df = 11/209$ ,  $P > 0.05$ ) have been found insignificant, whereas personality - dimension ( $F = 1.50$ ,  $df = 2/209$ ,  $P > 0.05$ ) has been found insignificant. Again, Group x personality dimension interaction ( $F = 0.00$ ,  $df = 1/209$ ,  $P > 0.05$ ) is also found to have no significant effect on familial stress.

It is evident from table IV.1.5.2 that neither group ( $F = 0.16$ ,  $df = 1/209$ ,  $P > 0.05$ ) nor personality dimensions ( $F = 1.58$ ,  $df = 2/209$ ,  $P > 0.05$ ) have any significant effect on social stress.

It can be seen from the results that with regard to environmental stress present in table IV.1.5.2 that neither group ( $F = 1.08$ ,  $df = 1/209$ ,  $P > 0.05$ ) nor personality has any significant effect. Further, interaction between groups X personality ( $F = 1.03$ ,  $df = 2/209$ ,  $P > 0.05$ ) is not significant.

From the table results, the hypothesis is accepted.

Table IV.1.5.2

Results of two way ANOVA of Overall stress, Dimensions of Stress for two Groups and Personality Dimensions of IAS

Variables	Residual		Main Effects						Interaction		
	Sum of Squares	Mean Squares	Sum of Squares	Mean Squares	F	Sum of Squares	Mean Squares	F	Sum of Squares	Mean Squares	F
<b>Familial Stress</b>	11387.30	55.55	44.53	44.53	0.082	166.869	83.435	1.502	0.018	0.018	.000
<b>Social Stress</b>	7219.15	35.22	5.56	5.56	0.158	111.48	55.74	1.58	75.18	75.18	2.132
<b>Environmental Stress</b>	9243.24	45.09	48.52	48.52	1.08	92.97	46.48	1.031	0.232	0.232	0.005
<b>Overall Stress</b>	52841.65	257.76	255.87	255.87	0.993	1038.027	529.01	2.052	86.269	86.269	0.131

**Table IV.1.5.3**

**Mean and Standard Deviation of Familial Stress for Normals and Patients and Personality Dimensions of IAS**

<b>Groups</b>	<b>Personality Dimensions</b>		
	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>
<b>Normals</b>	25.20 (8.76)	24.50 (6.36)	20.69 (8.76)
<b>Patients</b>	(00)	27.50 (5.54)	23.67 (15.70)

**Table IV.1.5.4**

**Mean and Standard Deviation of Social Stress for Normals and Patients, and Personality Dimensions of IAS**

<b>Groups</b>	<b>Personality Dimensions</b>		
	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>
<b>Normals</b>	23.60 (9.76)	21.00 (4.24)	21.49 (6.15)
<b>Patients</b>	(00)	28.85 (5.29)	19.33 (12.90)

**Table IV.1.5.5**

**Mean and Standard Deviation of Environmental Stress for Normals and Patients and Personality Dimensions of IAS**

<b>Groups</b>	<b>Personality Dimensions</b>		
	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>
<b>Normals</b>	20.40 (7.57)	22.00 (2.83)	18.36 (6.77)
<b>Patients</b>	(00)	25.42 (5.84)	21.33 (23.63)

**Table IV.1. 5.6**

**Mean and Standard Deviation of Overall Stress for Normals and Patients and Personality Dimensions of IAS**

<b>Groups</b>	<b>Personality Dimensions</b>		
	<b>Inertia</b>	<b>Activation</b>	<b>Stability</b>
<b>Normals</b>	69.20 (24.89)	67.50 (7.78)	60.54 (16.78)
<b>Patients</b>	(00)	79.87 (13.35)	64.33 (50.00)

**Interaction Between Normals and Patients in Hostility**

Scores of hostility scale is subjected to two - way ANOVA using Group (Normals and Patients) and IAS personality dimensions to verify the hypothesis, ' there will be significant interaction between the classificatory factors of personality and groups in the variable hostility. The results thus obtained are given in table IV.1.5.7. The mean scores corresponding to the factor is given in table IV.1.5.8. Histograms representing the mean scores relating to the different variables are presented in figure 1 to 5.

TABLE IV.1.5.7

Results of two way ANOVA of Hostility for different groups (Normals and Patients) and Personality Dimensions of IAS

Variable	Residual		Main Effects						Interaction		
	Sum of Squares	Mean Squares	Sum of Mean Squares	Mean squares	F	Sum of Mean squares	Mean squares	F	Sum of Mean squares	Mean squares	F
Hostility	32583.47	158.94	524.02	524.20	3.30*	1492.54	746.70	4.70**	938.20	938.20	5.90**

\*\* P < 0.01

\* P < 0.05

DF 209

**Table IV.1.5.8**

**Mean and Standard Deviation of Hostility for Normals and Patients, and Personality Dimensions of IAS**

Groups	Personality Dimensions		
	Inertia	Activation	Stability
<b>Normals</b>	79.40 (13.35)	71.00 (4.24)	72.02 (11.81)
<b>Patients</b>	(00)	98.27 (13.32)	71.00 (14.11)

The 'F' values with respect to hostility ( $F = 3.30$ ,  $df = 1/104$ ,  $P < 0.05$ ) indicate that significant mean difference exists in the scores obtained by individuals in the normals' group and patients' group. It is evident table IV. 1. 5.7 that interaction between groups and personality dimensions are also found to be significant ( $F = 4.7$ ,  $df = 1/104$ ,  $P < 0.05$ ;  $F = 5.9$ ,  $df = 1/209$ ;  $P < 0.05$ ). So the hypothesis is fully accepted.

Table IV.1.5.7 indicates that higher scores are obtained by activation of personality dimensions compared to those, all in other groups. However this pattern is found to be true only in patients groups.

The impact of hostility up on cardiac health was explored by researchers two decades ago like Williams (1987), Ketterer (1990) Ketterer *et al.*, (1993), Deary *et al.* (1994) Anderson and Lawler (1995), Fukunishi *et al.* (1995), Haney *et al.* (1996), etc. Even recent researchers like Yan (2003) had indicated the long lasting effect of hostility, up on circulatory system, which will extend up to 15 years. All these researchers point out hostility, a component of type A

personality. It is identified as a psychological factor which will increase stress. Mordkoff and Rand (1968), Krantz *et al*, (1988) etc. considered it as the major causal factor of CAD, and suggested that, it should be concentrated intervention programmes so that the main cause can be relieved and thus the symptoms as well as the disorder.

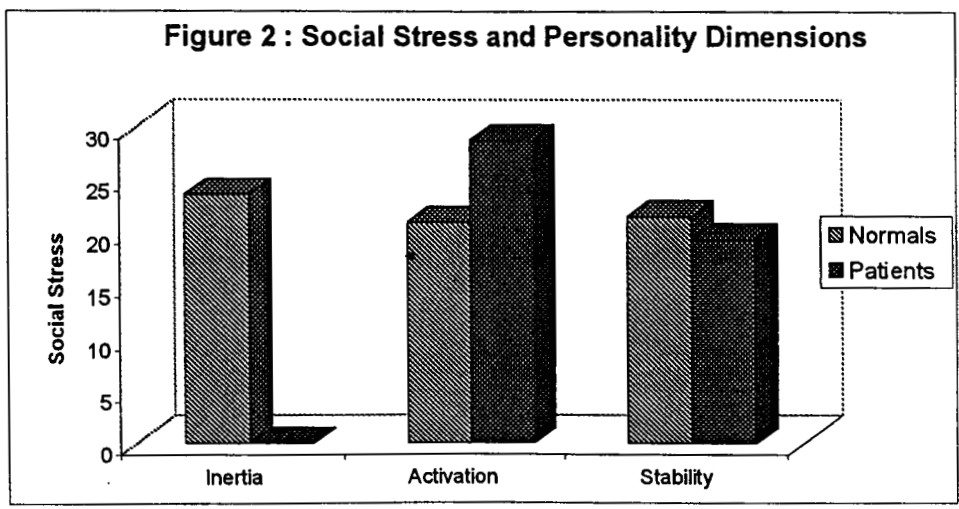
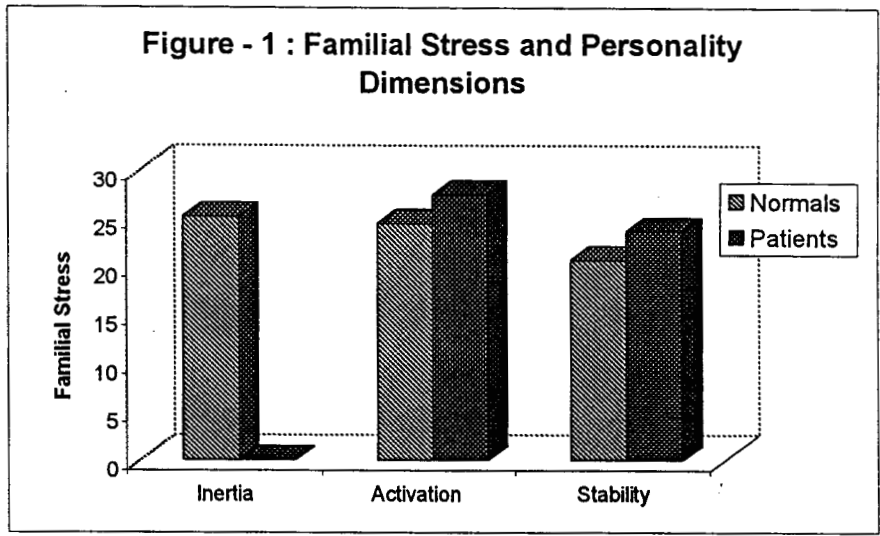
Johnson *et al.*, (1992), Burg *et al.* (1993) Mukhopadhyaya and Bose (1995), Krantz *et al.* (1996), Suarez (1998), Mandiang and Bishop (1999) etc., had examined the role of anger and hostility in the experience of stress which will directly affect our health, especially cardiac functions. But contradictory evidence also exists, like that of O'Malley *et al* (2001) which reported that, in a study among army personnel that stress and hostility are not related to coronary Artery calcification and that somatization is associated with the absence of calcification.

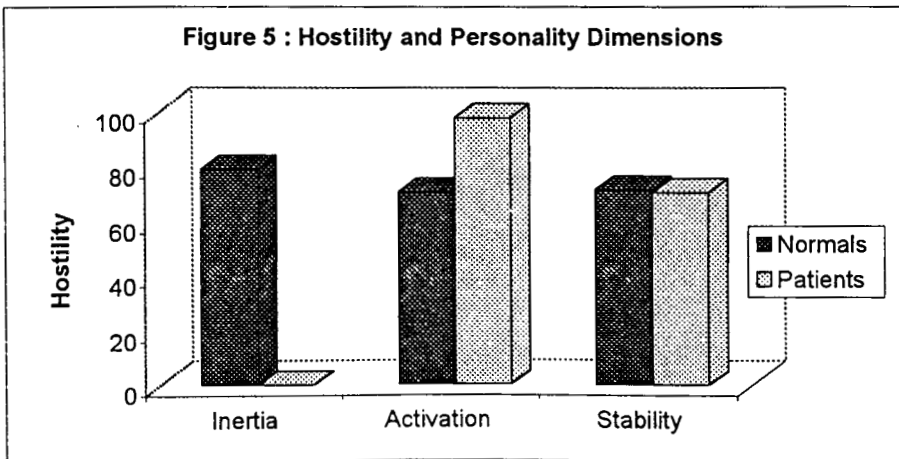
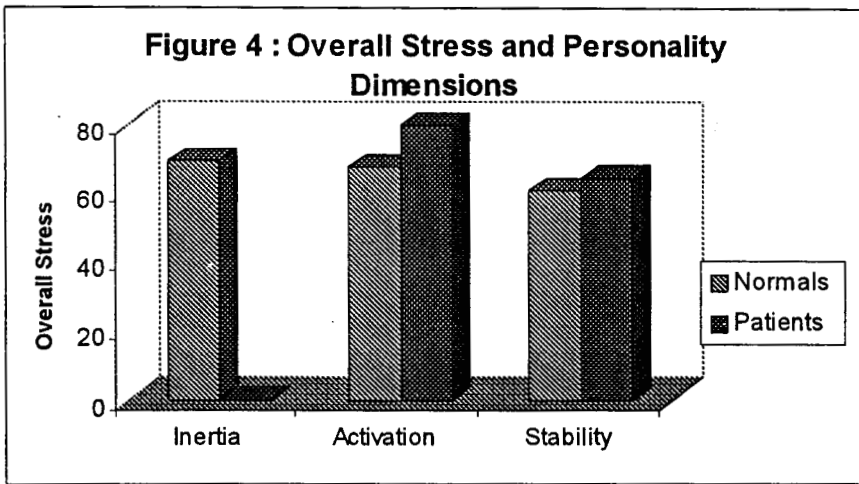
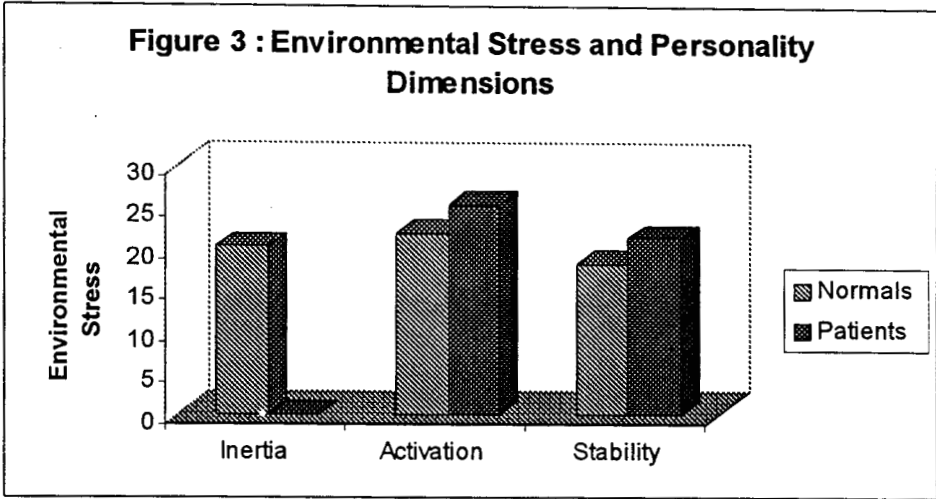
Activation a component of *trigunas*, the eastern concept of personality, can be interpreted as a personality dimension. It includes characteristic it can be seen that activation characteristics, like impatient, analytical, rash, aggressive, rebellious extrapulsive, sadistic, having conflicts etc. These characteristics well include hostile nature, which will easily create stress. From the analysis of the data, it can be seen that, these factors are positively correlated, with familial stress, and hostility.

The following are the figures which represent stress and hostility variables for normals and patients and according to their personality dimensions.

X-axis – IAS Personality Dimensions

Y-axis – Scores of Stress / Hostility Variables





## **SECTION VI**

# **HOSTILITY AND STRESS**

### Hostility and Stress in Normals

The patients' and normals' group were studied in terms of hostility and accordingly they were divided into low hostile (group I), medium hostile (group II) and high hostile groups (group III), Group I includes subjects with hostility less than  $M - \sigma$ , group II, subjects with hostility from  $M + \sigma$  to  $M - \sigma$  and group III, include subjects with hostility above  $M + \sigma$ ; where as  $M =$  mean and  $\sigma$  standard deviation of hostility. Such categorization was also done in two samples (patients sample and normals sample)

**Table IV.1.6.1**

**F value of Overall Stress and its Dimensions for various groups (N = 105) Formed on the Basis of Hostility (Normals)**

Variables	Between Group within Group				F
	Between Sum of Squares	Group Mean Squares	Within Sum of Squares	Mean Squares	
Familial Stress	137.00	137.00	7780.96	75.54	1.813
Social Stress	5.52	5.52	4080.04	39.61	0.139
Environmental Stress	9.87	9.87	4716.32	45.79	0.216
Overall Stress	156.16	156.16	30138.07	292.60	0.534

**Table IV. 1.6.2**

**Mean and Standard Deviation of Variable for Various Groups  
Formed on the Basis of Hostility (Normals)**

Variables	Hostility Group					
	I Low		II Medium		III High	
	N = 37		N - 68		N = Nil	
	Mean	SD	Mean	SD	Mean	SD
Familial Stress	19.43	5.50	21.83	9.99	00	00
Social Stress	21.89	5.27	21.41	6.78	00	00
Environmental Stress	18.11	5.65	18.75	7.30	00	00
Total Stress	59.43	11.58	61.99	19.44	00	00

In the normals sample, one way ANOVA was used to study whether the three groups, (which differ in hostility) also differ in stress. Table IV.1.6.3 gives the details. Stress is studied in the four dimensions, F values yielded are found to be insignificant for all the four dimension studies. The means and standard deviation of familial, social, environmental and overall stress for the three groups are given in table IV.1.6.2. No subject in the normal group have, high hostility. 68 subjects belonged to the medium range of hostility where as 37 subjects fall into low hostile group. While studying their different dimension of stress, it can be found that mean score of familial stress of the medium hostile group is 21.82 where as that of low hostile group is 19.43. For social stress and environmental stress there is only slight difference between the mean scores of the two normals' group which differs in their hostility mean score. Social stress of group I is 21.89 where as for group II, it is 21.41. Mean score environmental stress of group I is

18.11 where as that of group II is 18.75. While considering overall stress, the mean score for group I is 59.43 where as for group II, it is 61.99.

### **Hostility and Stress in Patients**

One way ANOVA was used to study the spread of stress in the patient's sample by considering their hostility and dividing them into high medium and low hostile groups. Unlike the normals' sample, the patients' sample included enough subjects with high hostility (N = 41). There was 7 subjects with low hostility where as 57 subjects belonged to the medium hostility range. They were treated as group III, group I and group II respectively.

When stress (familial, social, environmental and social dimensions) was studied in relation to the hostility of the group the F value is found to be significant only in the familial stress dimension (F = 4.34), whereas in terms of social stress, environmental stress and overall stress, the F value is not found to be significant. Details are given in table IV.1.6.3.

**Table IV.1.6.3**

**F values of Overall Stress and its Dimensions for Various Groups Formed on the Basis of Hostility (Patients' group, N = 105)**

Variables	Between Group		Within Group		F
	Sum of Squares	Mean Squares	Sum of Squares	Mean squares	
<b>Familial Stress</b>	285.44	142.72	3350.79	32.85	4.34**
<b>Social Stress</b>	85.80	42.90	3234.45	31.71	1.35
<b>Environmental Stress</b>	144.77	72.38	4465.48	43.78	1.65
<b>Overall Stress</b>	1166.00	583.00	22525.72	220.84	2.64

\*\* Significant 0.05 level

**Table IV .1.6.4**

**Mean and Standard Deviation of Variables, for Various Groups Formed on the Basis of Hostility (Patients' group)**

Variables	Hostility Group					
	I Low		II Medium		III High	
	N = 7		N = 57		N = 41	
	Mean	SD	Mean	SD	Mean	SD
<b>Familial Stress</b>	21.43	8.44	28.19	4.90	27.54	6.28
<b>Social Stress</b>	24.71	9.12	26.12	5.02	27.68	5.75
<b>Environmental Stress</b>	21.29	10.75	25.18	6.50	26.17	5.93
<b>Total Stress</b>	67.43	26.48	79.49	12.88	81.39	15.02

From the above tables, it can be interpreted that in the patients sample, group which vary in hostility differ significantly in terms of familial stress. Table IV. 1.6.3 indicates, the means and standard deviation of different dimensions of stress, of the groups which differ in hostility.

In the case of familial stress, the highest score is for the medium hostile group (N = 28.19). Then comes the high hostile group (N = 27.54). The least score was attained by the low hostile group (N = 21.43) The difference between these groups are found to be significant at .05 level (Table IV.1.6.3).

In social, environmental and overall stress, the highest level of stress is found in the high hostile group, then comes, the medium hostile group and the least scores were attained by the low hostile

subjects. The difference among the group are not found to be significant.

### **Hostility and Stress in Total Sample (N = 210)**

In the present study an attempt was made to study the stress experience of subjects (total sample) according to their level of hostility; to test the hypothesis that, "there will be significant difference between the classificatory factors of hostility (High, Medium and Low) in the variables of stress.

**Table IV.IV.1.6.5**

**F values of Overall Stress, its Dimensions for Various Groups (N = 210) Formed on the Basis of Hostility**

Variables	Between Groups		within Groups		F
	Sum of Squares	Mean Squares	Sum of Squares	Mean squares	
<b>Familial Stress</b>	1362.37	681.13	12413.20	59.97	11.36***
<b>Social Stress</b>	689.92	349.46	8049.56	38.89	8.99***
<b>Environmental Stress</b>	1229.02	614.51	10521.44	50.83	12.09***
<b>Overall Stress</b>	9107.33	4553.66	62542.79	302.14	15.67***

\*\*\* Significant at .001

The total sample (N = 210) was divided into three according to their hostility score. Group 1 ( $H \leq M - \sigma$ ), Group 2 ( $H = M - 1\sigma$  to  $M + 1\sigma$ ) and Group 3 ( $H \geq M + \sigma$ ) where H is hostility score, M is the mean hostility and  $\sigma$  is the standard deviation. The mean score of hostility for the total population is 85.92 and its standard deviation is 18.25. Accordingly the sample was divided into 3 groups and their stress scores were compared using one way ANOVA. Results are given in table V.1.6.5.

When familial stress was compared among the three group which vary in hostility, using one way ANOVA, the F ratio is found to be significant at 0.01 level. So the group differs significantly among themselves.

**Table IV.1.6.6**

**Mean and Standard Deviation of Stress Variables for Various Groups Formed on the Basis of Hostility**

Variables	Hostility Group					
	I Low		II Medium		III High	
	N = 44		N - 125		N = 41	
	Mean	SD	Mean	SD	Mean	SD
<b>Familial Stress</b>	19.75	5.98	24.73	8.66	27.54	6.28
<b>Social Stress</b>	22.34	6.47	23.56	6.46	27.68	5.75
<b>Environmental Stress</b>	18.61	6.65	21.68	7.63	26.17	5.93
<b>Overall Stress</b>	60.70	14.80	69.97	18.86	81.39	15.02

To do inter group comparison these scores later under went Scheffes' test and the results indicate that group II and III, significantly differ from group 1, in familial stress. The mean scores of group I, II, III on familial stress are 19.75, 24.73 and 27.54 ie as the hostility increases in the groups, familial stress also increases. The group which has got low hostility differs significantly from the group II and III (which has got middle range and higher levels of hostility) in their familial stress (Table IV. 1.6.7)

When the social stress was studied among the three groups which vary in hostility using one way ANOVA, F ratio is found to be significant at 0.01 level. This indicate that the groups differ among

them in terms of social stress. When Scheffee test was conducted among the groups, it was found that group III differs from groups I and II significantly. The mean scores of social stress for group I, II and III are 22, 34, 23.56 and 27.68 respectively. In these groups social stress is found to be highest for the group with highest level of hostility and the groups differ significantly, one another.

Just as in the other two levels, in the case of environmental stress also these groups differ significantly, as the F ratio is significant in the one way ANOVA. Later Scheffe test had shown that group III differs significantly from groups I and II. Table IV.1.6.6 indicates the mean and standard deviation of the three groups in environmental stress. The highest mean scores were attained by group III then comes groups II and the least means scores for group I. The mean scores are 18.61, 21.68 and 26.17 respectively.

In the case of overall stress also, the three groups differ significantly because the F ratio is found to be significant at 0.01 level. The groups which vary in their hostility differ significantly in their overall stress. To do inter group comparisons and find about the significant means difference among the groups. Scheffee test was conducted. The results indicate that group I significantly differs from group II and group III significantly differs from group I and II. ie all the group significantly differs, one another.

Table IV.1.6.6 indicates that the mean scores of overall stress for group I is 60.70, for group II is 69.97 and that of group III is 81.39. As hostility increases a significant mean difference is maintained among the groups.

The familial, social and environmental stress is found to be increased as the hostility increases. Many studies had reported the fact that hostility increases stress. Johnson *et al.*, (1992), Burg *et*

*al.*, (1993), Mukhopadhyaya and Bose (1995), Krantz *et al.*, (196) Suarez (1998) Mandiong and Bishop (1999). O ' Malley *et al.*, (2001) etc. had conducted studies about the relationship between stress and hostility. They had found that, among heart patients, high hostility is significantly related to stress and stress will be triggered by high hostility.

According to Adams (1994), Burg (1995) Miller *et al.*, (1996) and Enas (1996) hostility is the important factor which makes a person, coronary disease prone. When they get upset, they tend to show relatively strong physiological reactions and in comparison to others their heart rate and blood pressure reactivity is higher (Smith and Brown 1991) and evaluated secretions of stress hormones (Pope and Smith 1991). So those who have higher hostility tend to experience higher levels of stress.

In the present study, stress is studied in three dimensions and in all the three dimensions, stress will be increased according to the increase in hostility. So it provides a supporting evidences to the early mentioned studies with specific dimension also and the above hypothesis is accepted.

**SECTION VII**

**PREDICTORS OF HOSTILITY**

### **Stepwise Regression Analysis to Find the Predictor Variables which best Predict criterion Variable**

This part of the analysis has been done with a view of finding out the predictor variables which may best predict hostility. The technique followed for this is stepwise regression analysis (by ANOVA approach) for which computation was done with the help of a computer.

According to Cohen and Maman, finding out the relative efficiency of a set of variables in predicting the criterion variable is significant only in cases where the indices of correlation between a set of the predictor variables and criterion variable exceeds 0.40. That is when the relationships are marked or substantial.

The stepwise regression analysis has been done not only to select the set of variables that best predict the criterion variable, but also to eliminate superfluous predictor variables.

The predictor variable used for stepwise regression analysis (ANOVA approach) are given below:

#### **Predictor variables**

1. Inertia
2. Activation
3. Stability
4. Familial Stress
5. Social Stress
6. Environmental Stress.

The coefficient of correlation between the criterion variable and predictor variables are given separately in table IV.1.7.1

**Table IV. 1. 7. 1**

**Correlation Coefficients Between Criterion and Predictor Variable**

Sl. No.	Predictor Variables	r
1	Inertia	-.2338
2	Activation	.7068
3	Stability	-.6654
4	Familial Stress	.4367
5	Social Stress	.3361
6	Environmental Stress	.4065

The indices of correlation reported in Table IV.1.7.1 indicates that the predictor variable, Activation has the highest correlation with the criterion variable, and hence it was selected to enter first in the analysis. The result of the step I analysis is given in table IV. 1.7. 2.

**Table IV. 1. 7. 2**

**Results of Step-I Regression Analysis**

Variable entered =	X <sub>2</sub> (Activation)			
Correlation	r = 0.706			
Percentage variation	(R <sup>2</sup> x 100) = 49.95			
Beta (β)	= 0.707	B = 0.649	SE <sub>β</sub> = 0.045	
Constant	= 57.471			
Source	DF	SS	MSS	F
Total	209			
Regression	1	34067.018	34067.018	207.581
Residual	208	34135.762	164.114	(P < 0.001)

The value of F shows that the variable Activation is highly significant in predicting the criterion variable Hostility as the value of F is greater than the tabled value of F with 1,208) df.

The co-efficient of correlation obtained for the variable Activation is 0.7065 and in the shared variance ( $r^2 \times 100$ ) is 49.95. This shows that the percentage of variance of the criterion variable attributed by Activation is approximately 50. (Approximately 50% of variance in hostility is associated by the variable activation).

## Step II

Step II analysis was taken up to see whether there is any increment in the percentage variation accounted for by the predictor variables. The predictor variable having second highest partial correlation with criterion variable is Familial Stress.

The results of this analysis are shown in the table IV. 1.73

**Table VI. 1. 7.3**

### Results of Step-II Regression Analysis

Variable entered =	X <sub>2</sub> and X <sub>4</sub> (Activation and Familial Stress)			
Multiple correlation	(R) = 0.722			
Percentage variation	(R <sup>2</sup> x 100) = 52.199			
Beta1( $\beta_1$ )	= 0.636	B <sub>2</sub> = 0.584	SE <sub><math>\beta_2</math></sub> = 0.049	
Beta2 ( $\beta_2$ )	= 0.166	B <sub>4</sub> = 0.369	SE <sub><math>\beta_4</math></sub> = 0.118	
Constant	= 51.275			
<b>Source</b>	<b>DF</b>	<b>SS</b>	<b>MSS</b>	<b>F</b>
Total	209			
Regression	2	35601.396	17800.698	133.024)
Residual	207	32601.385	157.494	(P < 0.001)

The results of the step 2 analysis reveals that the percentage of variance accounted for by activation 49.95% and Familial Stress is 52.199.

This further suggests that by adding  $X_4$  to  $X_2$ , R has changed from 0.707 to 0.722 and hence the percentage variation revised from 49.950 to 52.199. The increment in percentage variation thus belong only 2. 249.

Here  $F = 113.024$  ( $P < 0.001$ ) for (2/207) df.

This suggests that the regression  $X_4$  is also significant in predicting Hostility, since the calculated F value exceeds the tabled F value at (2/207) df.

The 'B' weight of this variable  $X_2$  and  $X_4$  are respectively 0.584 and 0.369; the standard errors  $B_2$  and  $B_4$  are 0.049 and 0.118 respectively.

After step 2 analysis it was found that further addition of prediction variables has not much to contribute to R or for the percentage variation. Thus it was found that these are the two significant predictor variables. The two predictor variables in the order, as found in the stepwise regression in analysis, was Activation and Familial Stress.

A summary of the successive R's percentage variance, increase in R and increase in percentage variation are given in Table IV.1.7.4.

**Table IV 1.7.4****Details Regarding increase in Percentage Variation**

<b>Step</b>	<b>Variable entered</b>	<b>R</b>	<b>Increase in R</b>	<b>Percentage Variation</b>	<b>Increase in percentage variation</b>
1	X <sub>2</sub> Activation	0.707		49.95	
2	X <sub>4</sub> Familial Stress	0.722	0.15	52.199	2.249

**Comments**

Analysis done by step -wise regression shows that there are two significant predictor variable to predict the criterion variable hostility.

During 1980's researchers collected a mass of data suggesting that the toxic core of type A was hostility and anger. (Blumenthal *et al.*, 1987, Dembroski and Costa 1987). Hostility is defined as a stable predisposition to respond to a broad range of frustrating circumstances with varying degrees of anger, irritation, distrust, contempt and resentment (Dembroski *et al.* 1985). The Western Electric study showed that high hostility men had five times the incidence of CHD. (Shelellele *et al.* 1983).

A meta analysis of 83 studies pointed hostility as the most important casual factor of CHD, although depression also emerged as a strong component (Booth - Kewley and Friedman, 1987).

Helmerts *et al* pointed out that repressed hostility is an important predictor of coronary risk. (Helmerts *et al.* 1995) and an extensive meta analysis suggests that hostility is an independent risk factor for coronary disease. (Miller *et al.* 1996). Helmer's *et al.*,

classified people as high or low in repressed hostility and found that high hostile group will have more chance to be a heart patient.

Hostility makes unhealthy vibration in cardiovascular responses especially while exposing to stressors. In a study conducted by Vogele, very recently, in a German University, Psychology Department, the researcher had screened 74 male subjects, using Cook and Medley Hostility Scale and the upper and lower hostile groups were compared while exposing to stressful laboratory experiments, by measuring their heart rate, blood, pressure, respiration, electrodermal activity, during the experiments. Prior to the experiments fasting blood samples were taken for lipid determination. The results show higher heart rate reactively in high hostile than low hostile subjects. High hostile subjects also reported more anger and frustration in response to tasks. Hostility groups differed in lipid levels in that high hostiles had higher triglyceride and VLDL -C concentrations than low hostiles. Cholesterol levels showed an inverse association with cardiovascular reactively but only in low hostile subjects. No such association could be found in high hostiles.

Framingham Offspring study reported that men who were angry at the world and hostile to those around them are more widely to develop the dangerous heart beat abnormality called atrial fibrillation than those who possess a more benevolent outlook. The risk of atrial fibrillation was 30 percent high scores on a standard test for hostility and anger. In actual fibrillation, the upper two chambers of heart quiver increasing the risk of cardiovascular problems. They explained themselves as quick-tempered, furious when criticised, likely to hit when frustrated etc. This increase was not found to the people with higher components of type A, like time urgency or competition.

Eaker says that social stress and hostility can be considered as the casual factors of hostility, and counselling can be provided by addressing those factor. Stoney says that, " more research is needed to link anger and hostility with cardiovascular disease. Only through this broader understanding will be able to formulate meaningful interventions to decrease cardiovascular disease risk".

Hostility is a specific component of Type A behaviour that is a significant psychological risk factor for cardiovascular disease development. Girden *et al.* (1999) studied the effect of hostility reduction intervention on patients with Coronary Heart Disease. The study was among 22 male coronary patients; who were randomly assigned to either a hostility intervention or an information control group. Those in the intervention group were observed at immediate and two month follow ups to be less hostile than controls, as assured through self reports and structured interviews, and to have significantly lower diastolic blood pressure.

As the above mentioned researchers point out, many kinds of intervention can be effective in the area of CHD, the natural cure methods, were planned to apply and implement in the present study. Those methods are introduced to a group of 10 subject, who fulfilled the inclusion – exclusion criteria, (after deleting the data of drop outs and those didn't strictly follow all the 5 strategies, only 10 people were selected for the Phase II).

**PHASE II**

**PRE INTERVENTION**

**POST INTERVENTION COMPARISON**

## **SECTION 1**

\* *Psychological Variables- experimental group*

\* *Before - After comparison*

The second phase of the study conducted for the objective of exploring the efficacy of natural cure intervention package in managing some of the physiological variable as well as analysing psychological variables like personality, stress dimensions and hostility.

An intervention was provided to the experimental group where as the control group had undergone medical intervention.

On the basis of the stated objective the following hypotheses are formed.

1. There will be significant difference in the variables of Personality, Stress, Hostility and certain Psychological correlates between before and after intervention. (In the Experimental Group and Control Group)
2. There will be significant difference between the experimental group and control group in the variables of Personality, Stress and Hostility and certain Psychological correlates after intervention

The following sections gives the results of the second phase of the study. Comparison of the psychological and physiological variables are presented section wise and figurally.

### **Comparison of Psychological Variables in the Experimental Group**

#### **Before and After Intervention**

To study the efficacy of intervention on the experimental group through before after intervention comparison, the psychological variables were studied.

The psychological variables, namely Personality-IAS dimensions, stress dimensions like - familial, social, environmental and overall Stress and hostility were studied through pre and post intervention comparison, in the experimental group.

### **IAS personality Dimensions of Experimental Group Before and After Intervention**

To do comparison of the changes in the Inertia, Activation and Stability dimensions, due to the intervention t-test was done between the Personality scores of the experimental group assessed before and after intervention. Table IV.II.1.1 indicates the results.

**Table IV. 11.1.1**

**Means, Standard Deviation and t values of Personality  
Dimensions of IAS of Experimental Group  
(Before and After Intervention) (N = 10)**

Personality Dimensions	Pre Intervention		Post Intervention		't'-value
	Mean	S.D	Mean	S.D	
Inertia	20.3	2.31	20.3	2.83	00
Activation	57.2	6.52	47.4	5.73	6.90***
Stability	27.5	6.39	37.3	6.0	6.86***

\*\*\* Significant .001 level

The t value is not found to be significant for inertia, but it is significant for activation and stability. There is no mean difference for inertia, which indicates that inertia is unaffected by the intervention provided, where as activation and stability could be significantly varied due to the intervention. While comparing the changes in activation and stability scores, it can be seen that the changes in both of these factors are in contradictory directions, i.e.,

activation scores are being decreased through intervention (mean scores are 57.2 and 47.4 for the pre and post intervention period respectively) where as scores for stability is being increased through intervention (Mean scores are 27.5 and 37.3 for pre and post intervention period respectively). It shows advantage of intervention in activation and stability characteristics

Activation or *Rajasic* qualities are found to be decreased significantly through intervention. Activation is found to be highly associated and positively correlated with hostility in the patients' sample, as it includes characteristics like, being analytical, competitive, adventurous, unable to remain silent, extrapunitive, sadistic, having conflicts etc. Having a control over these factors, will be beneficial for making a person relaxed, so that healthier for the heart functioning. Intervention package can be considered as beneficial in decreasing this psychological dimension.

Stability or *Satvic* qualities are found to be increased after the intervention. This means, the subjects had increased qualities like controlled, restful, detached action, can be fast or slow according to situational demands, punctual and wise, broad minded, moral sense based on love, democratic, relaxed, peaceful, self sufficient, self accepting, balanced, mature, open, holistic, loving, unselfish, altruistic etc. All these characteristics help a person to decrease his stress, so that it is more heart-friendly. *Satvic* qualities help a person to become less coronary prone, so that there is chance for him to feel better. More over it can be interpreted that the intervention strategies are effective to increase *satvic* qualities, which are healthy characteristics.

Stress was studied in the experimental group in the three different dimensions, before and after the intervention, to verify the

hypothesis 1 of second phase, and to study the effect of intervention in stress reduction. The pre and post intervention assessment stress scores were subjected to t test to study the significance of mean differences. The result are given in table IV.II.1.2 .

**Table IV.II.1.2**  
**Mean Standard Deviation and t values of Overall Stress and**  
**its Variables of Experimental Group**  
**(before and after intervention)**

Stress Dimensions	Pre Intervention		Post Intervention		t-value
	Mean	SD	Mean	SD	
<b>Familial stress</b>	31	4.16	22.5	8.58	4.33**
<b>Social stress</b>	31.6	4.22	20.5	8.07	4.38**
<b>Environmental stress</b>	34.9	2.37	23.4	6.56	4.58**
<b>Overall stress</b>	97.5	7.11	66.4	14.91	7.31***

\*\* Significant 0.05 level

\*\*\* Significant .001 level

Table IV. II.1.2 indicates the mean scores, standard deviation and t value of familial stress, before and after the intervention. In the pre intervention assessment the mean score of familial stress is 31.0 where as the post intervention mean score is 22.5. The t value is found to be significant at 0.01 level, which indicates that the familial stress could be significantly decreased through the intervention strategies. Familial stress is found to be very high in the patients' sample compared to the normals, in the phase I [Table IV.I.3.1]. So the decrease in familial stress may be expected to have a beneficial effect up on the patients' cardiac health.

In the case of social stress, the t value is found to be significant at 0.01 level. The mean score of social stress for the pre intervention is 31.6 and that of post intervention is 20.5. The social Stress has significantly decreased after intervention. So it can be interpreted that social stress could be effectively controlled through the intervention provided.

Table IV. II.1.2 indicates the mean scores, standard deviation and 't' value of environmental stress in pre and post intervention assessment. The mean environmental stress in the pre intervention is 34.9 and that of the post intervention is 23.4. The t value is found to be significant at 0.01 level. This indicates that environmental stress also could be controlled through the intervention, provided.

To test the efficacy of intervention on overall stress, the scores were compared before and after intervention. The t value is found to be significant at 0.01 level. Details are given in table IV II 1.2 The mean score before intervention is 97.5 where as that after intervention is 66.4. So it can be interpreted that over all stress could be effectively managed and significantly controlled through the intervention provided. Or else natural cure methods provided in the intervention is very effective in decreasing familial, social, environmental and overall stress of heart patients and decrease in stress is more heart-friendly so that decrease in symptoms and effective functioning of heart can be expected.

Stress in general creates over functioning of heart, through the excitation of autonomic nervous system, especially through sympathetic arousal. This gives an additional work for cardiovascular system and those functions can be brought back to the normal stage, only by decreasing the stress experienced by the

person. It could be effectively practised through the intervention package provided to the experimental group, in the present study.

To verify the subhypothesis that hostility can be significantly decreased through the intervention, hostility assessments were made before and after the intervention, in the experimental group and the data were subjected to t test. The results are given in table IV.II.1.3.

**Table IV.II.1.3**

**Mean Standard Deviation and 't' Values of Hostility of Experimental Group (Before and After Intervention)**

<b>Groups</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>'t' value</b>
Pre intervention	121	6.99	15.58***
Post intervention	71.6	8.34	

\*\*\* **Significant .001 level**

Table IV. II.1.3 indicates the mean scores, standard deviation and t value of hostility. The mean score of hostility before intervention is 121 and that of after intervention is 71.6. The t value is found to be significant at 0.001 level, which indicates that hostility, the deadly emotion and personality variable which makes a person coronary prone and hypertensive (hostility) could be effectively controlled through the intervention provided. As controlling the root physical cause behind every disorders, the natural cure methods could control the psychological cause behind Coronary Artery Disease. As the hostility could be significantly decreased through the intervention, the hypothesis can be accepted.

Girdon *et al.*, (1999) had already studied the effect of hostility reduction intervention on patients with CHD.

**Comparison of Psychological variables in control group  
(Before and after intervention)**

To study the effectiveness of the intervention program, similar assessments were done in the experimental and control groups and psychological variables were compared. Among the psychological variables' comparison, IAS personality dimensions, stress (familial, social, environmental and overall dimensions) and hostility were studied, before and after interventions (Natural cure methods in the experimental group and medical intervention in the control group) in both the groups and the data were compared using 't' test . The results are given in table IV.II.2.1, IV.II.2.2 and IV.II.2.3 The IAS dimensions' comparison among control group between the pre and post intervention assessments are given in table IV.II.2.1

**Table IV. II.2.1**

**Mean, Standard Deviation and 't' Values of  
Personality Dimensions of Control Group  
(Before and After Intervention)**

Variables	Intervention		Intervention		t-value
	Mean	SD	Mean	SD	
<b>Inertia</b>	19	00	18.7	4.14	0.23
<b>Activation</b>	61	0.00	54.7	6.16	3.23
<b>Stability</b>	25	00	31.6	7.27	2.87

In the case of personality dimensions, t value is not found to be significant for Inertia where as for Activation and Stability t value is significant, in the pre and post intervention scores comparisons of the control group. This indicates that after intervention the Activation and Stability scores are changed but that change is not significant at any level. Activation is found to be decreased and

## **SECTION II**

- \* ***Psychological Variables - Control Group***
- \* ***Before - After comparison***

stability is found to be increased. But in comparison with the experimental group, this difference is higher in the experimental group, than that in the control group i.e., the changes in these variables can be in higher rates through the intervention provided by the experiments.

Stress among heart patients are widely studied, as increased stress is one of the risk factors of coronary heart disease. In the present study, so as to verify whether stress could be controlled through medical intervention. For that the control groups in stress scores are studied in the pre and post intervention assessment. The results are given in table IV.II.2.2.

**Table IV.II.2.2**

**Mean, Standard Deviation and 't' Values of Overall Stress  
and its Dimensions of Control Group  
(Before and After Intervention)**

Variable	Intervention		Intervention		t-value
	Mean	SD	Mean	SD	
<b>Familial Stress</b>	28.4	6.0	30.7	4.05	-2.44
<b>Social stress</b>	28.5	4.79	22	6.59	0.55
<b>Environmental stress</b>	25.8	6.30	26	5.14	0.23
<b>Overall stress</b>	81.1	12.45	82.5	9.38	0.55

Above table indicates the mean scores, standard deviation and t values of different dimensions of stress, in pre and post intervention assessments of the control group. From the table IV. II.2.2 it can be seen that the t values for social, environmental and overall stress are

not significant. But a significant difference can be observed in the case of familial stress. In comparison with that of the experimental group, this mean difference is lower. In the experimental group, the patients to whom the intervention package was administered, the mean difference in the familial stress was higher than that of the control group.

While doing comparison among different dimensions of stress, it can be seen that only familial stress is found to be changed slightly, where as other dimensions are unaffected, in the control group. It may be due to the higher family support provided to the patient, especially when he faces a life threatening situation.

**Table IV.II.2.3**

**Mean Standard Deviation and 't' Value of Hostility of Control Group Test (Before and After Assessments)**

<b>Intervention</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>'t' value</b>
<b>Pre intervention</b>	117.10	8.88	0.65
<b>Post intervention</b>	115.7	10.32	

Pre and post intervention comparison was done for the control group by doing t test to study the effectiveness of medical intervention upon the major psychological variable under study, hostility. Mean Standard Devotion and 't' value are given in table IV. II.2.3. Hostility score before intervention is 117.1 where as after intervention, it is 115. The t value ( $t' = 0.65$ ) is not found to be significant according to table IV.II.2.3 i.e., the mean difference in hostility is not significant. This indicates that the patients' hostility levels cannot be decreased through the medical intervention.

## **SECTION III**

- \* *Comparison between Experimental and Control group*
- \* *Psychological Variables*
- \* *After Interventions*

### **Experimental and Control Group on Psychological Variables (After Intervention)**

To assess and compare the efficacy of the Natural Cure Intervention package and medical intervention upon the Psychological variables under study, comparisons were done between two post intervention assessments. Personality and stress dimensions as well as hostility were studied like this, subjecting the data, to t-test for independent samples and the results are given in the tables IV.II.3.1, table IV.II.3.2 and table IV.II.3.3

The table IV.II.3.1 means, standard deviation and t- value of experimental and control groups, on the personality dimensions.

**Table IV.II.3.1**

**Mean, Standard Deviation and 't' values of the Experimental and Control Group for IAS Personality Dimensions  
(After Intervention)**

Variables	Experimental Group		Control Group		't' value
	M	S.D	M	S.D	
Inertia	20.30	2.83	18.7	4.13	1.01
Activation	47.4	5.73	54.7	6.16	2.74*
Stability	37.3	6.0	31.6	7.28	1.91

\* Significant at 0.05 level

When the personality dimensions of the experimental and control groups were compared after the intervention, it can be found that the groups does not differ much it terms of inertia, (t value = 1.01). Where as they differ significantly in activation and stability. ('t' values are 2.74 and 1.91 respectively) For activation, mean score for the control group is 37.3 and for the experimental group it is 31.6. Higher activation characteristics are something which affects the

functioning of heart, where as stability qualities gives much relaxation and peace of mind. Activation characteristics include extra punitive nature, having conflicts, rigid external moral controls, being competitive, impatient, hasty, rash, adventurous etc. These are decreased due to the intervention provided Activation characteristics are those which very highly related to heart ailments, especially C.H.D. In the present study that is found to be high among heart patients, compared to normal (table IV.I.3.1). All these characteristics are decreased due to the intervention provided, compared to the control group, who were not exposed to the intervention package of the study, the beneficial effect of the intervention program upon the behavioural factors, that affect the cardiac health can be interpreted.

A Similar effect can be seen in the stability dimension, in the opposite direction, when the scores for activation has decreased, a proportionate increase can be seen in the stability scores. The experimental group has got a mean score of 37.3 in stability, during post intervention, where as it is only 31.6 for the control group. The mean difference is significant only at 0.1 level. The increased stability characteristics could be found in the experimental group. Stability characteristics are something which negatively correlated with hostility, so that increased stability qualities are more heart friendly, as it include characteristics like controlled, restful, punctual, wise, democratic peaceful, relaxed, broad minded etc. The intervention package provided by the experimenter has helped the experimental group significantly to develop increased stability qualities.

Unlike stability and activation, there was no significant difference between the inertia scores of experimental and control groups, in the post intervention assessments, which indicate that the intervention package provided by the investigator and the medical

intervention does not have any kind influence up on inertia characteristics.

Stress was explored in the three dimensions and comparisons were done between the experimental and control groups, regarding their stress scores in the post intervention assessments, to study the effects of the intervention, up on the stress dimensions of the patients. The results of t-test done, in familial, social, environmental and over all stress are given in table IV.II.3.2

**Table IV. II.3.2**

**Mean, Standard Deviation and 't' values of Stress Dimensions, of the Experimental and Control Groups (After Intervention)**

Stress Dimension	Experimental Group		Control Group		't' value
	M	S.D	M	S.D	
<b>Familial stress</b>	22.5	8.58	30.7	4.05	2.73*
<b>Social Stress</b>	20.5	8.07	25.8	4.02	1.86
<b>Environmental Stress</b>	23.4	6.57	26	5.14	0.99
<b>Overall Stress</b>	66.4	14.91	82.5	9.38	2.89*

\* significant at 0.05 level.

Familial stress is compared between experimental group and control group. The mean score of familial stress for the experimental group, after intervention is 22.5, where as that of the control group is 30.7. The 't' value is found to be significant at .01 level. This indicates that the experimental group has a significantly lower level of familial stress, compared to the control group, after intervention.

In the table IV. II.3.1 it was found that familial stress is very high in the case of heart patients, in comparison with normals and the table IV.I.2.1 reveals that it is highly correlated with hostility. So the decrease in familial stress can be interpreted as something beneficial for the cardiac health and from the significant difference between the experimental and control groups, the increased beneficial effect of the intervention package, to decrease the familial stress also can be interpreted.

In the case of social stress, mean score for the experimental group is 20.5, and for the control group is 25.8. Though the experimental groups score is lower in comparison to the control group, in post intervention assessments, the mean difference is not statistically significant. Present study couldn't reveal significant decrease in the social stress in the experimental group. The beneficial effect of intervention package compared to the medical intervention, in decreasing social stress was not found, though the social stress affects cardiac function in the heart patients.

While comparing the environmental stress between the control and experimental groups it can be interpreted that there is no significant difference between experimental and control group in terms of environmental stress, in post intervention assessments. The experimental group has got a mean score of 23.4 for environmental stress in the post intervention assessment, where as for the control group, it is 26. The lower score of the experimental group is not significantly different from the control group but this stress level is decreased. The environmental factors will create stress in the patients, but the effect up on those kinds of stress by the intervention is better than that of the medical intervention.

Overall stress also was studied, by doing comparison between experimental and control groups after the intervention. The overall stress of the experimental group has got a mean score of 66.4 for post intervention assessment whereas that of the control group is 82.5. As the 't' value is significant, ( $t=2.89$ ) the mean difference can be interpreted as significantly different at 0.01 level.

The experimental group has got a significantly lower level of overall stress compared to the control group. As stress will lead to sympathetic arousal, increased exposure to stressors cannot be considered as healthy, especially when the subject consider the stressor as harmful or something which he/she can't face easily. So it was aimed to control stress through the intervention procedures like Yoga and Meditation, Self Expression Programs and Psychological Counselling etc. These are found to be effective in creating a significant difference in the overall stress of the experimental group, compared to the control group. Frasure-Smith Prince (1989) had provided an intervention to decrease stress, through counselling, education on heart disease, emotional and social support and revealed 50 percent reduction in cardiac deaths, through a long term study of 7 years.

**Table IV II.3.3**

**Mean, Standard Deviation and 't' value of Hostility of the Experimental and Control Groups (After Intervention)**

<b>Hostility</b>	<b>M</b>	<b>S.D</b>	<b>'t' value</b>
<b>Groups</b>			
<b>Experimental group</b>	71.6	8.34	10.51**
<b>Control group</b>	115.7	10.32	

\*\* significant at 0.01 level

Hostility can be considered as the major factor, the deadly emotion, that lead a person to heart disease, from the analysis of phase I. It is expected to be decreased through the intervention of natural are methods. To study this efficacy, the post assessments of hostility are compared between the control group and experimental group, by subjecting the data, to t test. Table IV. II.3.3 given the details.

The mean hostility score of the control group is 115.7 where as that of the experimental group is 71.6. The t value is found to be significant at 0.01 level. So the control group has got a significantly higher hostility compared to the experimental group. This indicates that the significant difference in hostility could be attained by the subjects in the experimetal group who had under gone the natural cure intervention methods.

A number of intervention studies had attempted to modify hostility to reduce cardio vascular disease risk. Nunes *et al* (1987) performed a meta analysis of such kinds of studies conducted prior to 1987, and says that cardiac events could be controlled up to 50 percentage by using a combination of treatment techniques to change Type A behaviour, including hostility. Friedman *et al* (1986), Mendes de Leon *et al* (1991) etc had reported similar evidences.

The present intervention is found to be effective in decreasing hostility and the beneficial effect was also found in the decreased source of familial stress, and activation, as well as increased stability among the experimental group. The self-reports of the subjects also had revealed the effect of the intervention up on the symptoms and daily life of them, though it's not a long term study. The major contributing psychological factor could be effectively controlled by the natural cure intervention program, through decreasing hostility.

## **SECTION IV**

- \* ***Physiological Variables-Experimental Group***
- \* ***Before and After Intervention***

## PHYSIOLOGICAL VARIABLE

### EXPERIMENTAL GROUP (Before and After Intervention)

In the Phase II, some of the physiological variables like blood pressure (Systolic and diastolic), pulse, breath rate (Rate per minute), and body weight were assessed for the experimental and control groups and they were compared as before after comparison in the two groups, separately and two post intervention assessments were compared between the control group and the experimental group. The results are given in table IV.II.4.1, table IV. II. 4.2 and table IV. II.4.3

Strong positive correlation between elevated blood pressure and heart failure is already reported and additionally, it is the single most important risk factor for CHD. (Cutler, 1996). So during intervention a special attention was given to the study in the cardiovascular responses through blood pressure and pulse measurement. They were measured before and after the intervention, in the experimental group and the scores were subjected to 't' tests. The results are given in table IV.II.4.1.

**Table IV. II.4.1**

**Mean, Standard Deviation and 't' Values of Physiological Variables of Experimental Group - ( Before and After Intervention)**

Variable	Pre intervention		Post intervention		't' value
	Mean-	SD	Mean	SD	
<b>Systolic Blood Pressure (mm Hg)</b>	129.5	10.12	121.5	7.65	3.41**
<b>Diastolic Blood Pressure (mm Hg)</b>	86.80	10.28	80.70	8.33	3.65**
<b>Pulse (per minute)</b>	77	3.68	71.80	5.47	2.52*
<b>Breath rate (per minute)</b>	20.10	1.10	17.50	2.17	4.09**
<b>Body weight (Kg.)</b>	60.3	7.32	56.4	7.4	09.59**

\* Significant at 0.05 level      \*\* Significant at 0.01 level

The Table above indicates mean, standard deviation and 't' value of physiological variables. The 't' values are found to be significant for pressure and pulse, in the pre intervention and post intervention comparisons of the experimental group. Systolic and Diastolic blood pressure and pulse are found to be higher in the case of pre intervention assessment where as the scores are decreased in the post intervention assessment. i.e., the change is more toward the normal level of blood pressure and pulse.

Mean systolic blood pressure in the pre intervention assessment is 129.5mmHg and that of the post intervention assessment is 121.5mmHg.. Likely the mean diastolic blood pressure is 86.8mmHg, for the pre intervention assessment where as, the post intervention assessment, it is 80.70mmHg. Both of these show mean differences which are significant at 0.01 level.

In the case of pulse, the mean score for pre intervention assessment is 77 per minute and that for post intervention assessment is 71.8 per minute. This mean difference is significant at 0.05 level.

Number of breath, taken by the subject per minute was counted, with out the subject knowing about the assessment, in the lying posture, during the measurement of blood pressure. Mean breath rate per minute during pre intervention is 20.1 per minute where as it is 17.5 per minute during post intervention. The mean difference is found to be significant at 0.01 level.

Body weight of the subject was also measured before the intervention and after the intervention. For the experimental group, the mean body weight, before intervention is 60.3Kg and it is 56.4Kg. in the post intervention assessment. The above mentioned

physiological variables are represented as SBP (Systolic Blood Pressure), DBP (Diastolic Blood Pressure), P (Pulse), BR (Breath Rate) and BW (Body Weight) in the individual profile analysis of the experimental group which is mentioned in the last part of the discussion.

Most of the subjects in the experimental group had hypertension and before the intervention they were controlling that through medication. In the intervention camps, subjects had undergone the 5 strategies provided to them and later they had followed them at home, for a period of 41 days. It was later, on the 41<sup>st</sup> day that the post intervention assessments were done. In the case of present study, the intervention can be considered as beneficial to bring the physiological variables to the normal level, because almost all the physiological variables of post intervention assessments had revealed normal level range.

The reduction of weight helps to lower blood pressure (Whelton, *et al.*, 1996). weight loss has a beneficial effect on risk factors for cardiovascular diseases and may enhance patients' overall sense of well-being. Weight loss should be achieved with moderate calorie restriction (Carretero and Oparil 2000).

High sodium intake has been associated with high blood pressure, though individual response to sodium varies. Restriction of sodium intake are very effective in lowering blood pressure (Weinberger, 1996). Colin *et al.*, (2000) demonstrated significant reductions in blood pressure in moderately hypertensive subjects, regardless of age, gender, race, weight, family history, physical activity level, or socio economic status when placed on a diet rich in fruits, vegetables and low-fat-dairy products, compared to those control subjects maintained on a 'Usual American Diet'. The study

revealed dramatic results. Pate *et al.*, (1995), Hu *et al.*, (2000) etc. had studied the beneficial etc., effect of exercise training up on blood pressure of hypertensive patients. Dubbert (1995), Eisenberg *et al.* (1993) etc had reported studies, in which, small but significant decrease in blood pressure achieved through bio feed back and relaxation training, including yoga and meditation.

Patel *et al.* (1981, 1985) found a positive effect of breathing exercise, relaxation, meditation and stress management, upon blood pressure. Subjects who received relaxation training showed decrease in both systolic and diastolic blood pressure, approximately 7mm Hg for both, over a four-year follow-up period.

Though different kinds of interventions were already reported their efficacy, the present study had used an integrative approach of 5 different strategies, which were found to be effective. According to Nezu *et al* (2003), effectiveness of cognitive behavioural interventions like stress management and bio feedback, in lowering blood pressure have been rather minimum; behavioural interventions such as weight loss and dietary changes which confer direct physiological changes, have proven to be effective adjusts to pharmacological interventions for treating hypertension. Finally non-adherence to antihypertensive medication regimens is a prevalent and very significant problem that warrants further investigation.

All the aforementioned studies are showing the effectiveness of some of the behavioural intervention program which were beneficial in normalizing the blood pressure or body weight of the patients. As the present study intervention had used most of those strategies in the intervention package, the study is in line with that of those researchers, more over some additional remedies are also included in

the present study; which may bring the subjects, toward normalcy, more easily.

Another important matter that have to be attended in the case of experimental group is that, till intervention, the subjects were under medication, for the different symptoms related to CHD and so there is chance to have physiological variables, without much variation from the normal level in the pre-intervention assessment. Still they were not taking medicines during the intervention, the ranges of the physiological variables were brought to the normal range.

## **SECTION V**

- \* *Physiological Variables – Control group*
- \* *Before and After Intervention*

## PHYSIOLOGICAL VARIABLES

### **Control Group (Before and After Intervention)**

Present study had used a control group for the comparison with the experimental group. Care was taken to keep almost perfectly matched groups and they differed only in terms of the treatments attained. The experimental group received the treatment package given by the investigator and they had undergone that at least for 41 days. During this time period the control group, didn't get these treatment strategies, but received usual medical intervention. They had received medication, advices to change their life style, like, to control high animal fat intake, do exercise, do walk daily etc, but those were not in close observation of experts. The changes in the physiological variables among the control sample also was studied at the time of pre intervention-post intervention assessments. They were following only medical intervention strategies.

Systolic and diastolic blood pressure, pulse, breath rate and body weight were the physiological variables studied among the control group. They were assessed and compared using 't' test. The results are give in table IV.II.5.1

**Table IV. II. 5.1**

**Means, Standard Deviations and 't' Values of Physiological Variables of the Control Group (Before and After Intervention)**

Variable	Pre intervention		Post intervention		't' value
	Mean	SD	Mean	SD	
<b>Systolic Blood Pressure (mm Hg)</b>	126.6	6.38	125	6.67	1.63
<b>Diastolic Blood Pressure (mm Hg)</b>	85.7	6.7	84.0	6.99	1.36
<b>Pulse (per minute)</b>	77.4	3.57	75.5	4.09	1.9
<b>Breath rate (per minute)</b>	21.5	1.65	21.1	1.59	1.5
<b>Body weight (Kg. )</b>	67.9	8.66	68.1	8.37	-0.45

Though there is slight decrease in the blood pressure, pulse and breath rate, the difference was not found to be significant. It may be because, the 1<sup>st</sup> assessment was done, not before the medical intervention, but during medical intervention. There was only slight variations in their blood pressure, pulse etc. Though they are diagnosed as hypertension the levels of variables (at the time of pre intervention assessment) might be maintained by their usual intake of medicines. So significant change was not observed in these variables. In the case of body weight, there was a non-significant increase in the post intervention assessment, though, the medical intervention also insists to decrease body weight, through diet correction, exercise etc. The present study had provided an intervention which also had provided similar but a little more healthier results.

## **SECTION VI**

- \* *Physiological Variables –*
- \* *Post Intervention Assessments*
- \* *Experimental and control groups*

## COMPARISON IN THE POST INTERVENTION ASSESSMENTS

### Experimental and Control Groups

The experimental and control groups had received two different kinds of interventions and their effects upon the variables under study, were assessed through pre intervention, post intervention comparisons separately. To compare the effects of two interventions, as the groups were perfectly matched, two post intervention assessments (of the experimental and control groups) were studied using 't' test. The details are given in table IV. II. 6.1

**Table IV .II .6 .1**

**Mean, Standard Deviation and 't' Values of  
Physiological Variables, of the Post Intervention Assessment  
(Experimental and Control Group)**

Variables	Experimental Group		Control Group		't' value
	Mean	SD	Mean	SD	
<b>Systolic Blood Pressure (mm Hg)</b>	121.5	7.65	125	6.67	1.09
<b>Diastolic Blood Pressure (mm Hg)</b>	80.7	8.33	84	6.99	0.96
<b>Pulse (per minute)</b>	71.8	5.47	75.5	4.09	1.71
<b>Breath rate (per minute)</b>	17.5	2.17	21.1	1.59	**4.22
<b>Body weight (Kg.)</b>	56.4	7.44	68.1	8.37	**3.30

\*\* Significant at 0.01 level

From the table IV. II.6.1 it can be seen that; for systolic pressure, diastolic slightly pressure and pulse rate, the scores of the experimental group are lower than that of the control group and the

experimental group is slightly more nearer toward the normal range, but the mean difference is not found to be significant. Though the experimental group is not undergoing medication, they could maintain the levels of blood pressure and pulse, as not significantly different from the control group; who were under medication. The mean systolic blood pressure of the experimental group is 121.5mmHg where as for control group, it is 125mmHg. The mean diastolic pressure of the experimental and control groups are 80.7mmHg and 84mmHg respectively and their mean pulse rates were 71.8 per minute and 75.5 per minute, respectively.

In breath rate, the mean score for the experimental group is 17.5 per minute and that of the control group is 21.1 per minute. The mean difference is found to be significant at 0.01 level ('t' value = 4.22). The experimental group has a significantly lower breath rate, compared to the control group. Higher arousal of the sympathetic system will actually increase breath rate and lower breath rate shows relaxation in the subjects; which is associated with parasympathetic action. This decreases (normalise) blood pressure and leads to better cardiovascular responses.

The increased body weight is usually associated with heart attack, especially if there is increased fat deposition. The diet is controlled through intervention and the patients engaged in walking, swimming, yoga etc which were beneficial to decrease their body weight. The mean body weight of the experimental group is 56.4 kg. and that of the control group is 68.1 kg. The mean difference is found to be significant at 0.01 level ('t' = 3.30). Though there was changes in the body weight for both the groups, the experimental group has a greater decrease in body weight (table. IV. II.4.1). Where as in the case of control group body weight had slightly increased (table IV.II.5.1), in the pre intervention post intervention comparison.

In the inter group comparison, of the post intervention assessments, also revealed a significant difference, in which a greater benefit of the intervention program was revealed in decreasing body weight, among the experimental subjects.

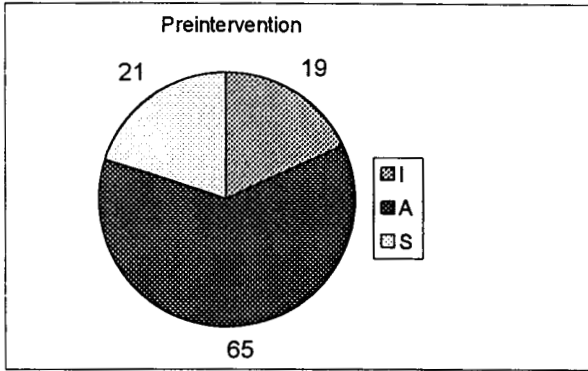
Altogether, in all the physiological variables studied, the experimental group had shown a beneficial effect of the intervention program upon their cardiac health, through blood pressure, pulse, breath rate and body weight measurements. It doesn't mean that medical intervention won't lead to these physiological changes. Pre intervention assessment of the control group as well as experimental group is not before the onset of medical intervention, but during medical intervention. Though the patients had diagnosed as hypertensive, much increase in systolic or diastolic pressure couldn't be assessed in all the cases during pre intervention assessment, which may be due to the effect of medicines. The finding is that natural cure procedures could maintain the normal level or decrease the level of physiological variables like blood pressure, pulse, breath rate, body weight etc. There was significant difference in the case of 5 physiological variables of experimental group's before intervention, after intervention comparison, and in the inter group comparison they had expressed a significant difference in breath rate and body weight.

### **Individual Profile Analysis**

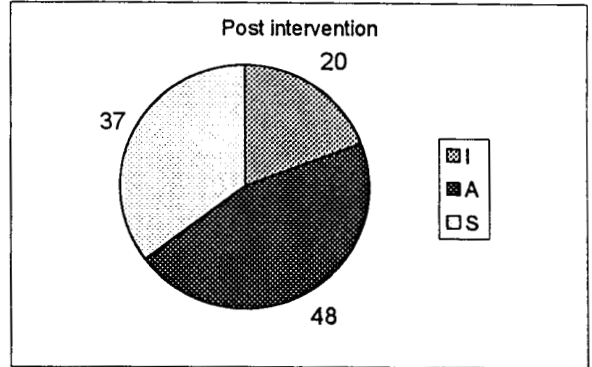
The following figures indicates the pre and post interventions assessments of the experimental subjects. The pie-diagram and histograms make the interpretation easier. The abbreviations I, A, S, H, FS, SS, ES and OS are used to indicate variables namely Inertia, Activation, Stability, Hostility, Familial Stress, Social Stress, Environmental Stress and Overall Stress respectively. This helps for the subject wise comparison of the pre and post intervention assessments of the variables.

## SUBJECT – 1

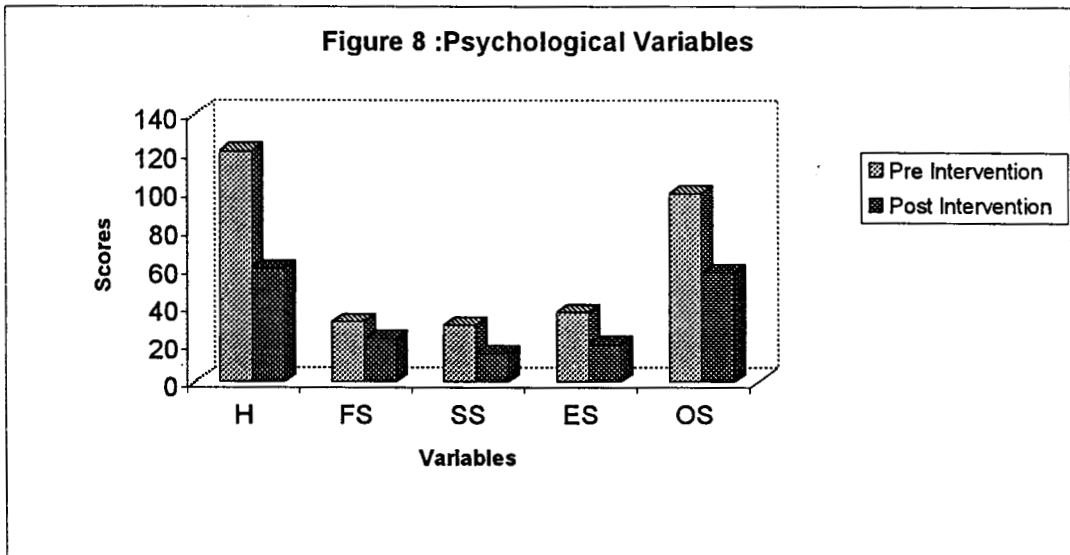
**Figure 6 : Personality Dimensions**



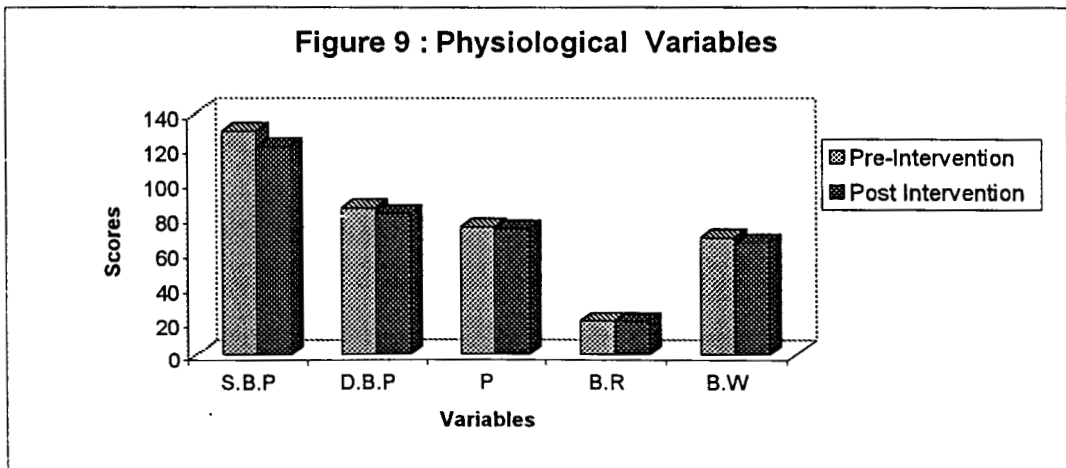
**Figure 7 : Personality Dimensions**



**Figure 8 :Psychological Variables**

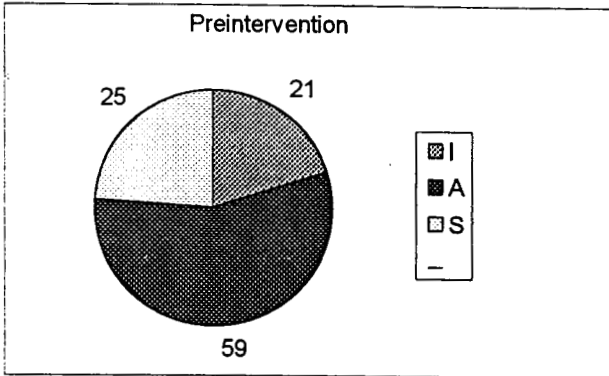


**Figure 9 : Physiological Variables**

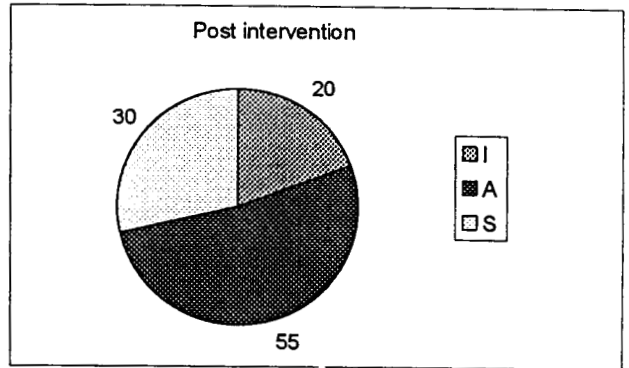


## SUBJECT – 2

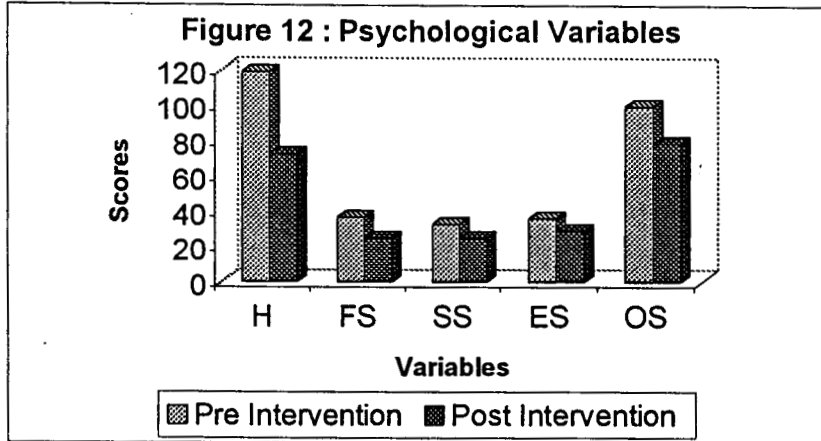
**Figure 10 : Personality Dimensions**



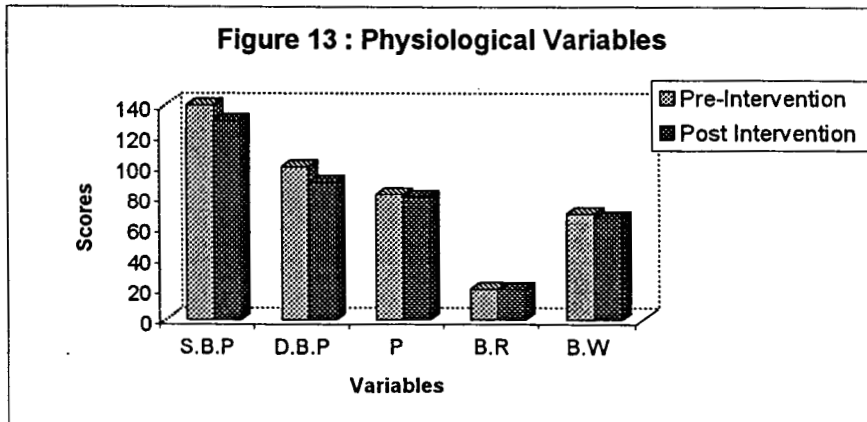
**Figure 11 : Personality Dimensions**



**Figure 12 : Psychological Variables**

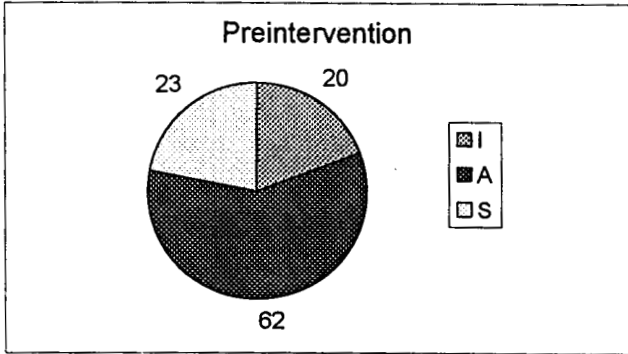


**Figure 13 : Physiological Variables**

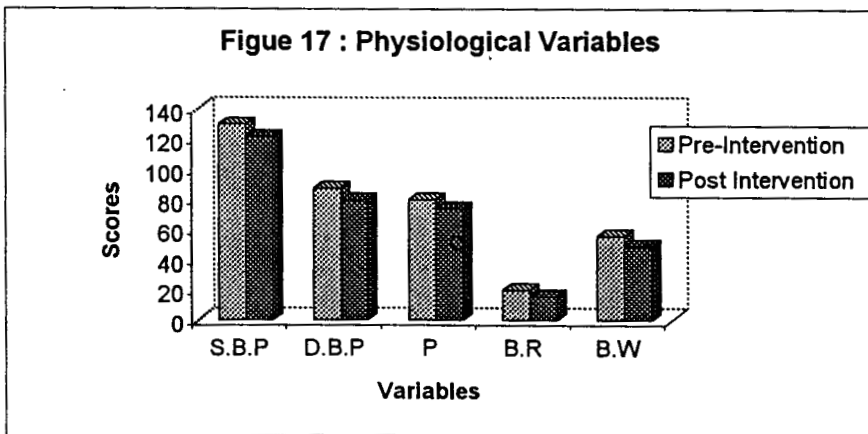
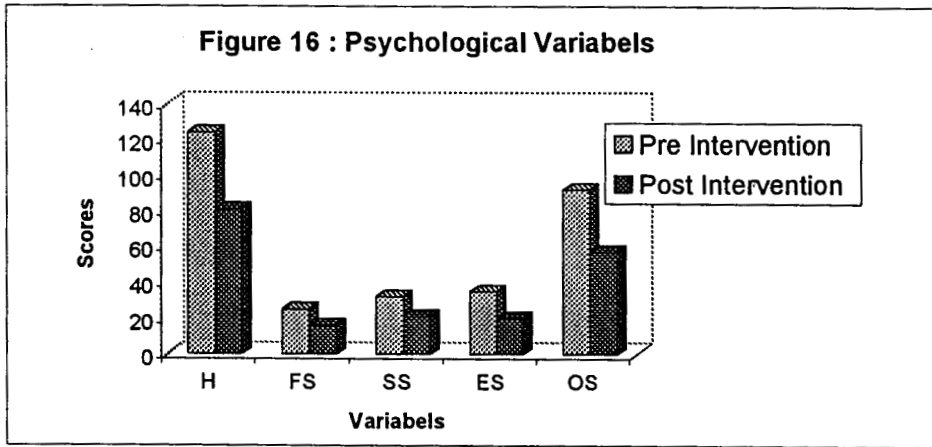
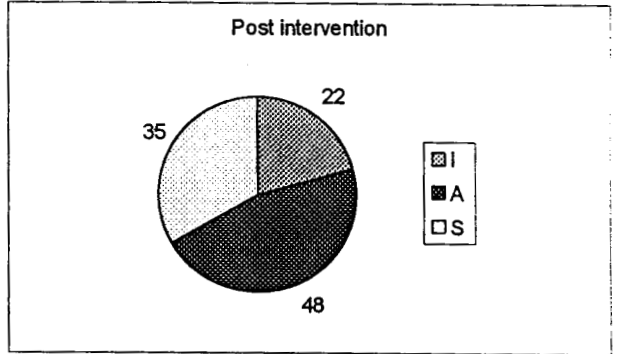


**SUBJECT – 3**

**Figure 14 : Personality Dimensions**

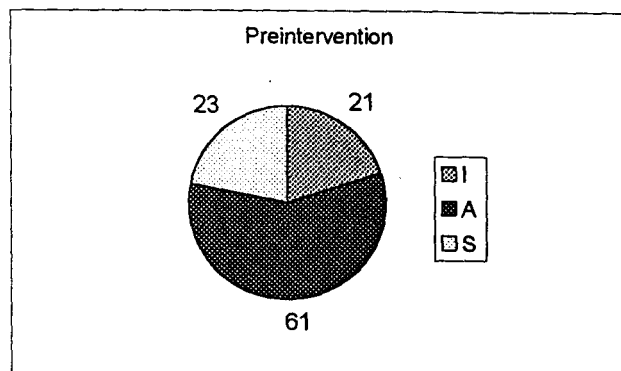


**Figure 15 : Personality Dimensions**

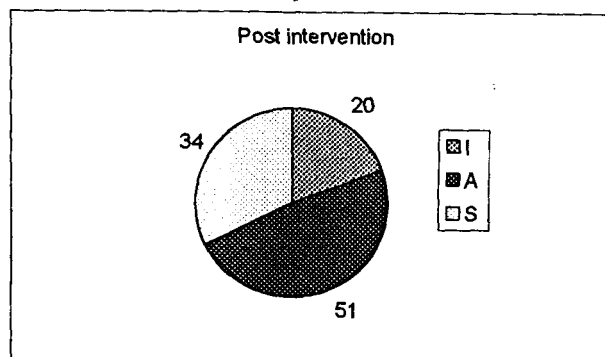


**SUBJECT - 4**

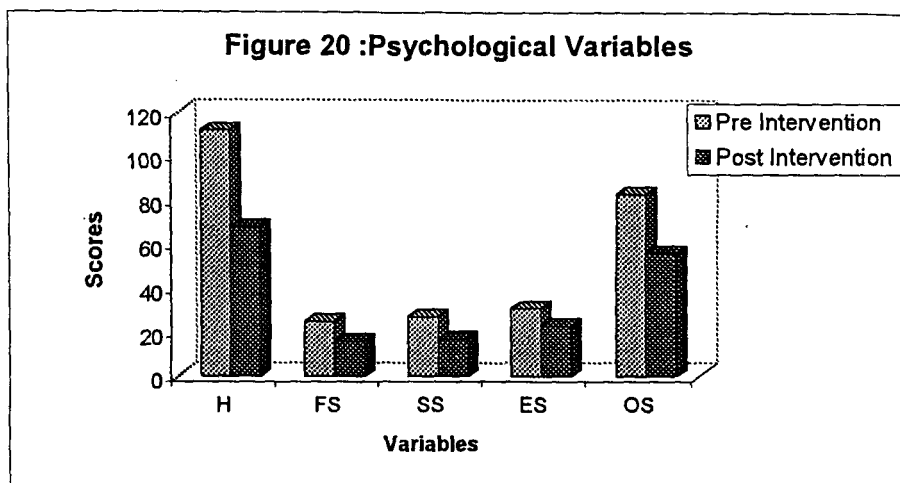
**Figure 18 : Personality Dimension**



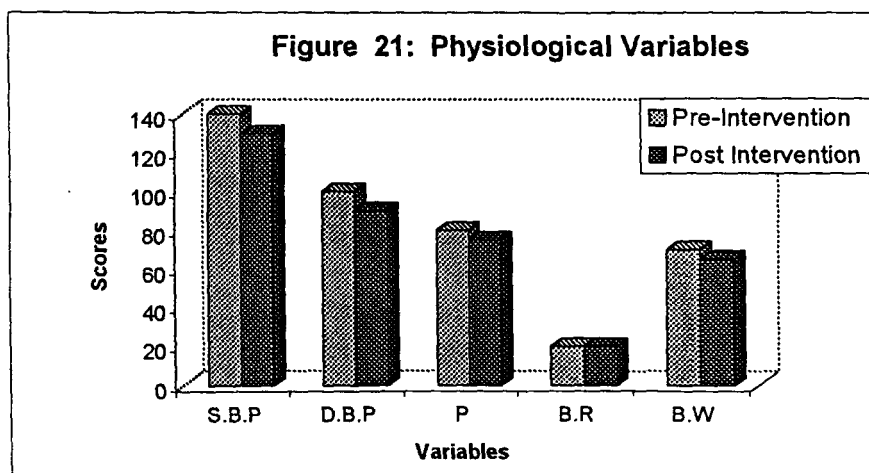
**Figure 19 : Personality Dimensions**



**Figure 20 :Psychological Variables**

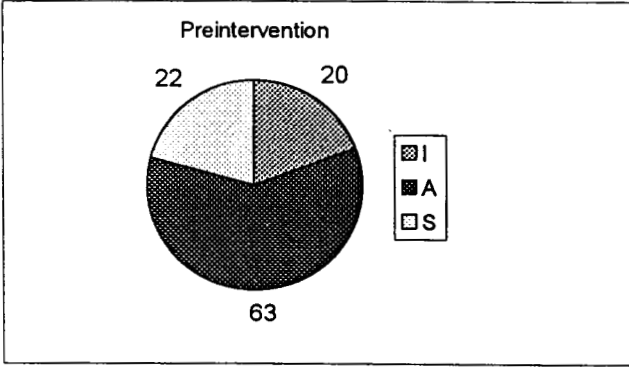


**Figure 21: Physiological Variables**

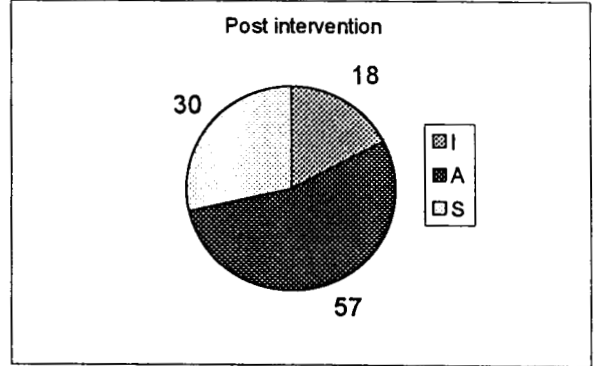


**SUBJECT – 5**

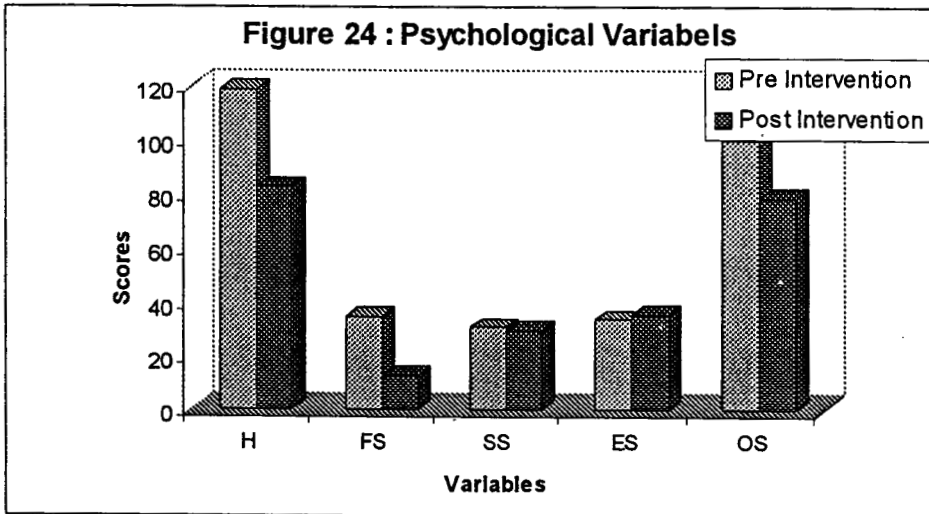
**Figure 22 : Personality Dimensions**



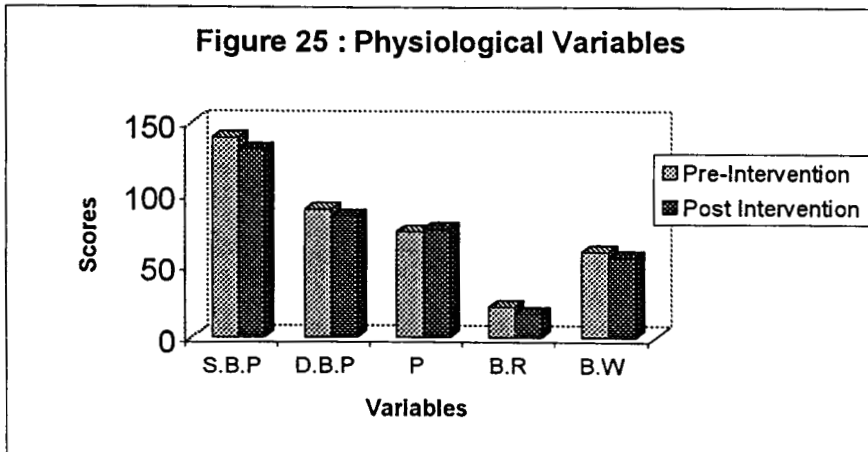
**Figure 23 : Personality Dimensions**



**Figure 24 : Psychological Variabels**

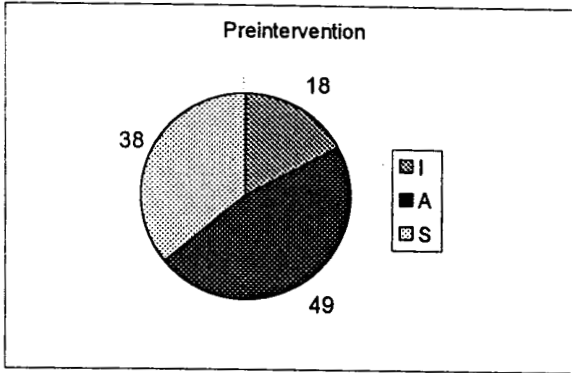


**Figure 25 : Physiological Variables**

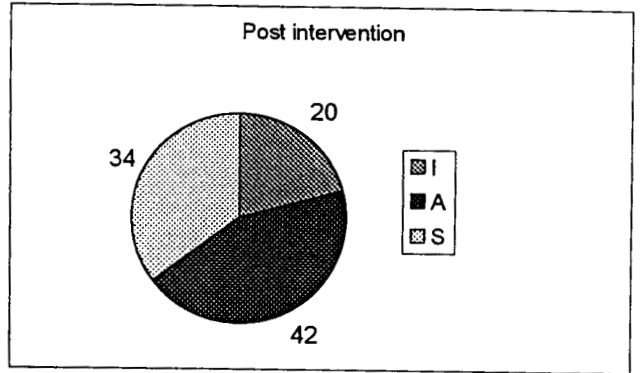


**SUBJECT – 6**

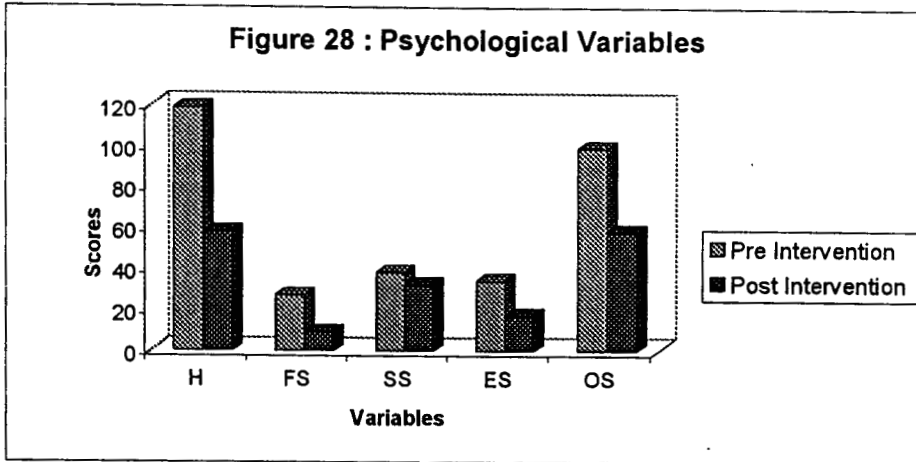
**Figure 26 : Personality Dimensions**



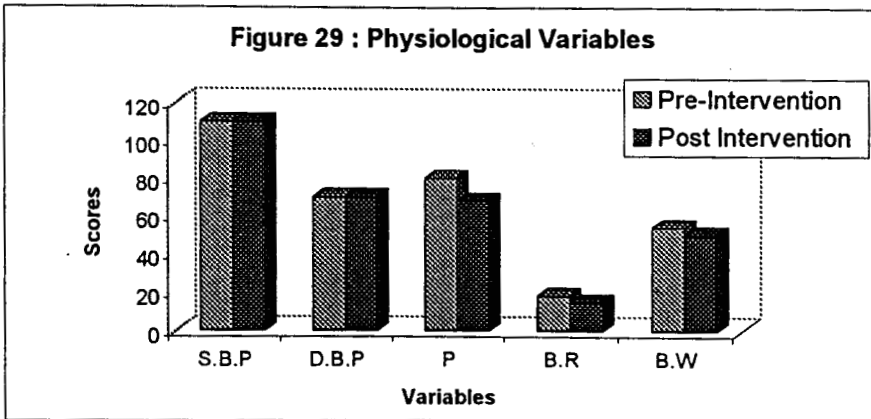
**Figure 27 : Personality Dimensions**



**Figure 28 : Psychological Variables**



**Figure 29 : Physiological Variables**



SUBJECT - 7

Figure 30 : Personality Dimensions

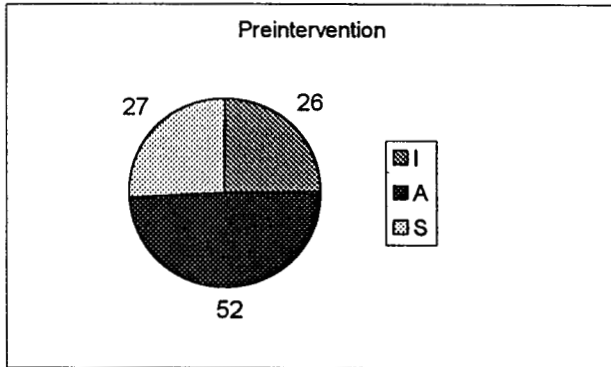


Figure 31 : Personality Dimensions

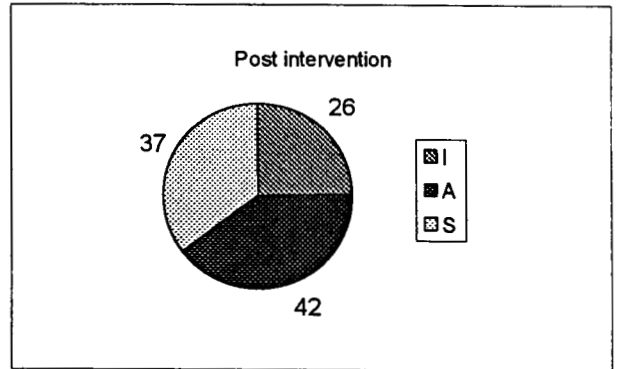


Figure 32 : Psychological Variables

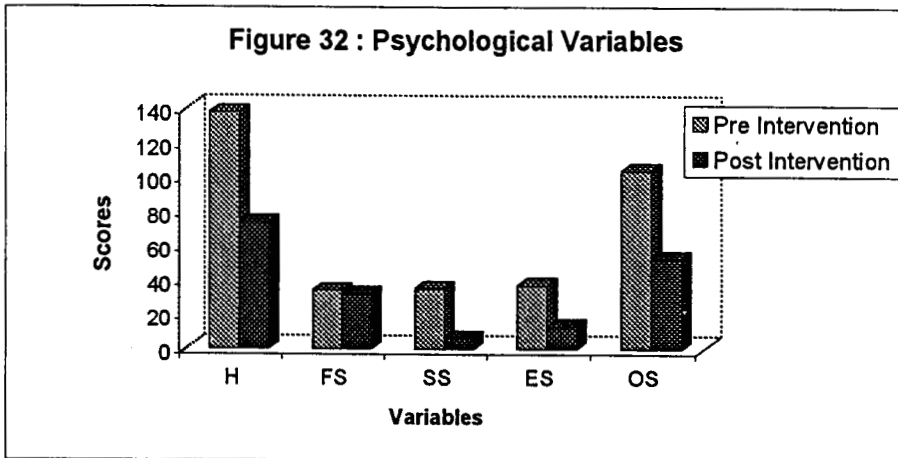
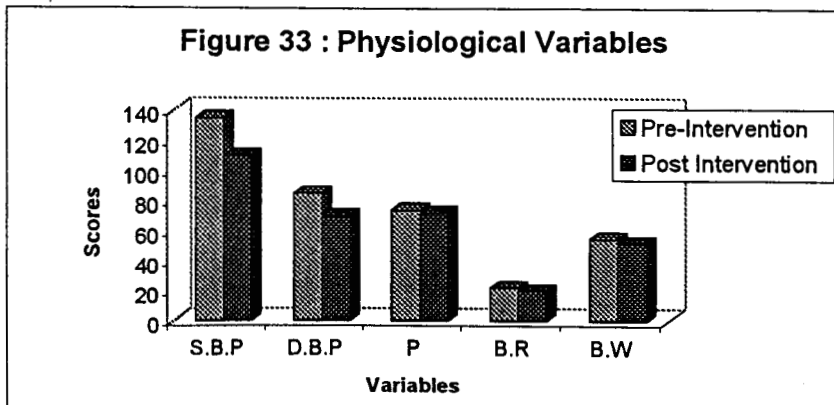


Figure 33 : Physiological Variables



SUBJECT – 8

Figure 34 : Personality Dimensions

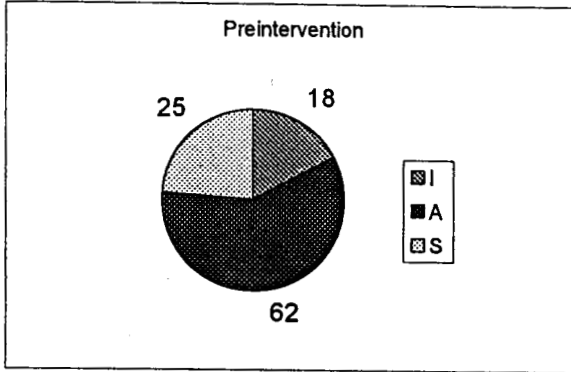


Figure 35 : Personality Dimensions

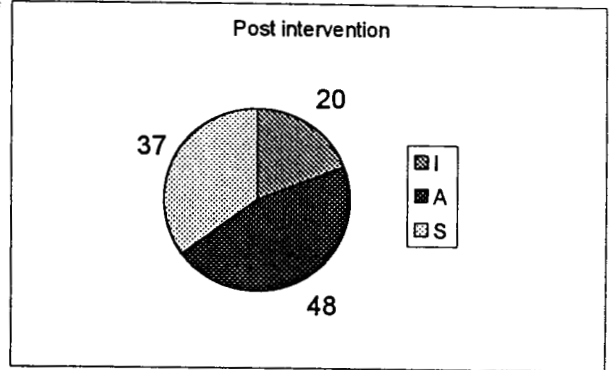


Figure 36 : Psychological Variables

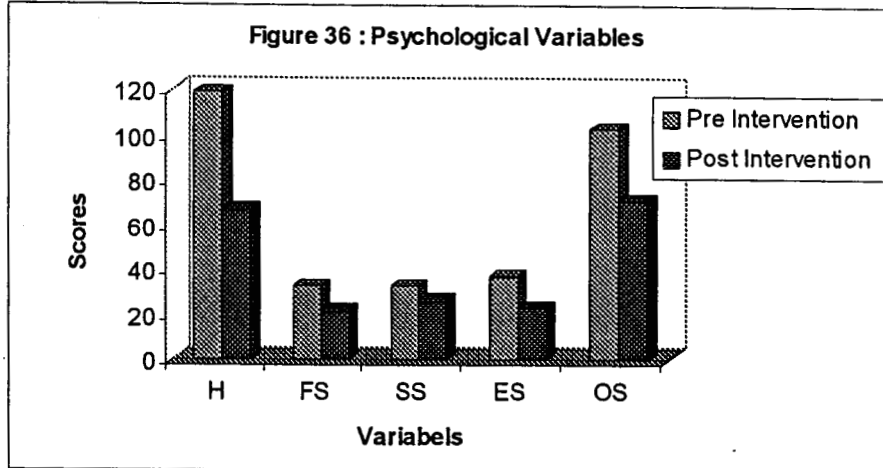
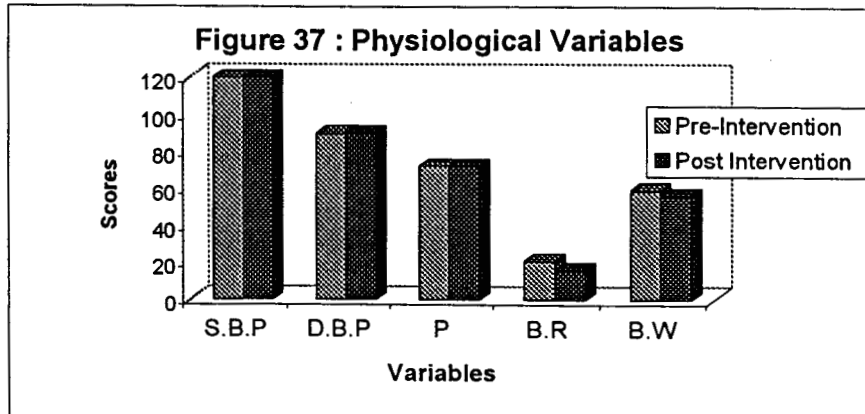
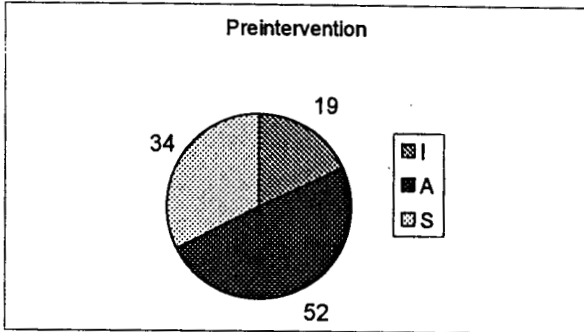


Figure 37 : Physiological Variables

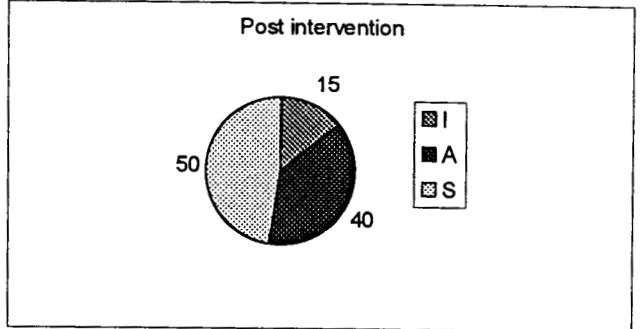


**SUBJECT – 9**

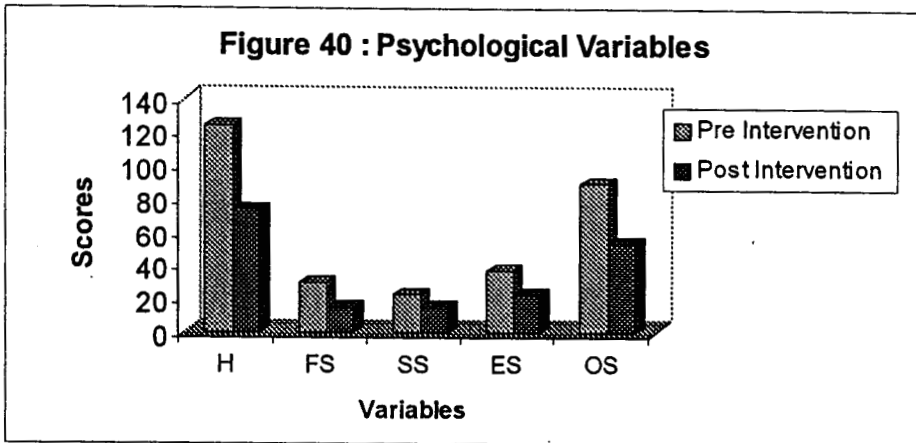
**Figure 38 : Personality Dimensions**



**Figure 39 : Personality Dimensions**



**Figure 40 : Psychological Variables**



**Figure 41 : Physiological Variables**

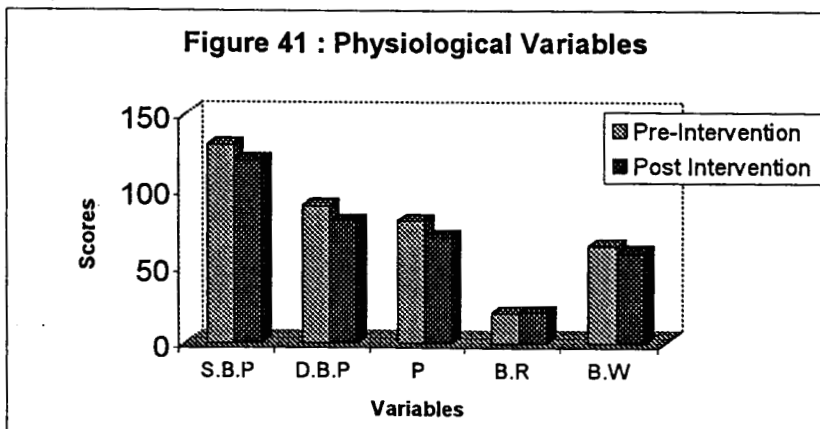


FIGURE 10

Figure 42 : Personality Dimensions

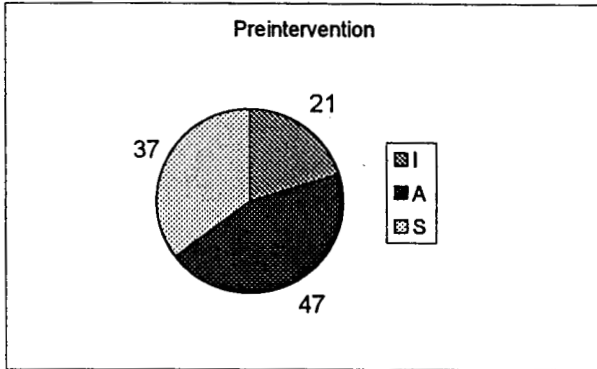


Figure 43 : Personality Dimensions

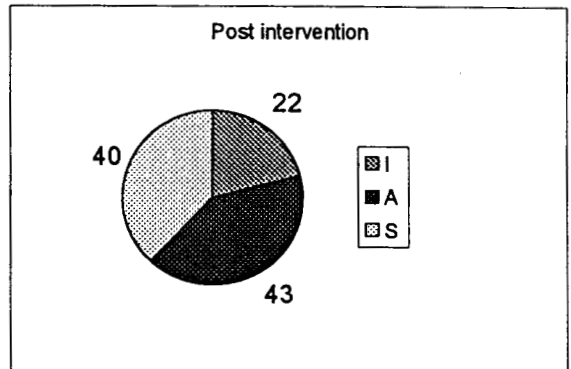


Figure 44 : Psychological Variables

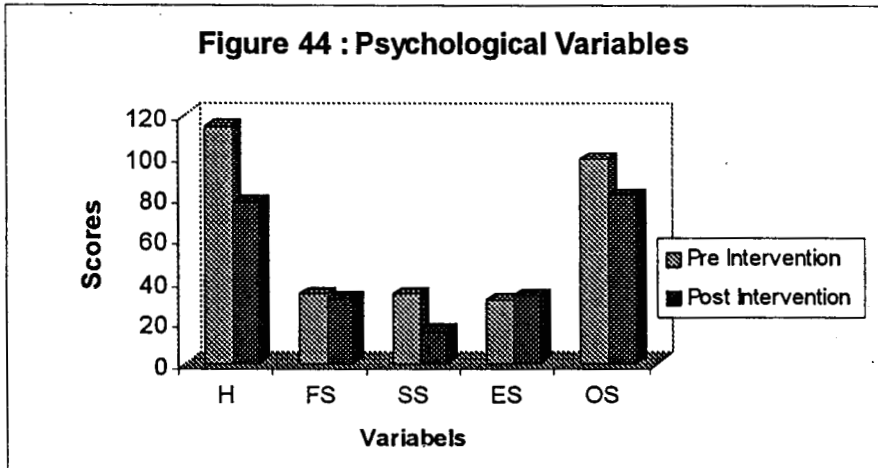
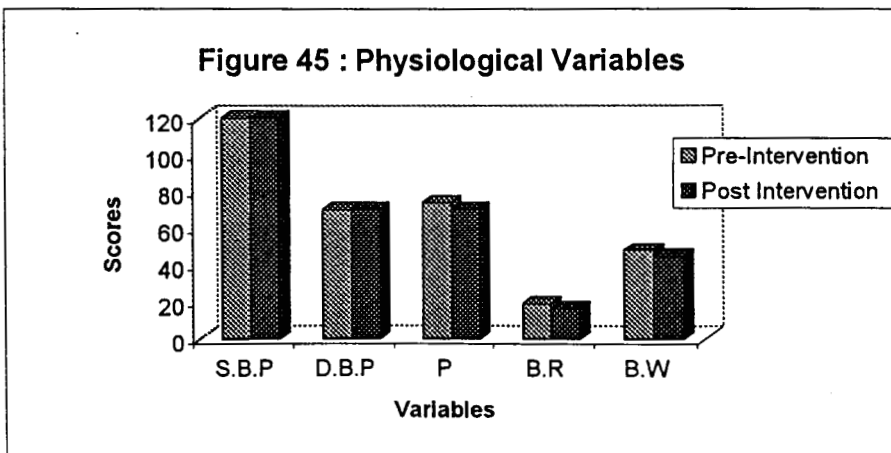


Figure 45 : Physiological Variables



Girden *et al.*, (1999) had found that blood pressure can be significantly lowered if the hostility is reduced through intervention. Smith *et al.*, (1995) had used a smoking cessation, lipid management, low fat diet, physical activity, weight management , blood pressure control program through diet change, reduced salt intake and oestrogen replacement therapy (for post menopause women).

Dean Ornish had worked with heart patients (CAD) through vegetarian diet, exercise and stress management - The Life Style Heart Trial (Ornish *et al.* 1990), a prospective randomised controlled trial of patients with Coronary Artery Disease demonstrated that this life style modification had resulted in regression in coronary atherosclerosis as evidenced by a decrease in diameter stenosis. Later Ornish *et al.* (1998) extended the study for 5 years and found that size and severity of perfusion abnormalities on dipyridamole positron emission tomography images decreased (improved), after risk factor modification in the experimental group, compared to an increase (worsening) of size and severity in the control group.

The intervention provided in the present study is comparable to the above mention study, but a different one. The diet control is in such a way that not only vegetarian diet is provided, but it is in the unlooked (raw) form. There is no exercise provide, but Yoga, which is merged with relaxation as well as Meditation with a purpose of getting '*Vishranti*', (relaxation). It leads to calming down. The other activities in the intervention package like walking, swimming, games etc. will provide exercise to the patients but none of them are imposed but rather according to the interest and motivation of the subjects. All these had another purpose of stress releasing. Moreover, self expressions programmes and Psychological Counselling provides additional stress reduction. Moreover the

support of the family members, especially spouse (if the subjects is married) as well as the co-operation among the camp members was sought, to provide as sense of social support for the subjects. Lectures in the camp was aimed to give necessary information about the Etiology and basis of Natural Cure are methods as well as relevance of life style modification in healing heart ailments, which was aimed to provide a cognitive and behavioural change among the subjects. Moreover, hostility the major psychological casual factors of the heart ailments is mainly concentrated, the decrease through the intervention procedures, by increasing virtues and thus can make changes in activation and familial stress. So this study had expected a positive result in heart functioning and it could be observed through the subjects responses in psychological and physiological variables under the study.

From the aforementioned discussions of the present study it was found that hostility is the factor which is highly determining one's increased activation and Familial Stress. All these three factor are found to be high among heart patients, compared to normals. Hostility can be found to be the major psychological casual factor of CHD. Natural cure methods, give importance for stopping or cessation of cause, to treat any disorder and not supportive of treating by controlling or suppressing symptoms. The symptoms will be over when there is no cause and, through that, when there is no disorder. Present study proposes that hostility is the major casual factor of CHD, so that; it has to be treated or controlled through the intervention and that should be relieved from the subjects, then only the disorder can be treated properly and symptoms will be cured and CHD will be healed.

The present study also finds that hostility, as well as some related variables are found to be high among patients' sample.

Hostility can be considered as the major causal factor which make a person cardiac prone.

From a study conducted among 774 order white men, Niaura also argue that hostility may predict heart disease more often than traditional Coronary Heart Disease (CHD) risk factor like high cholesterol, cigarette smoking, weight etc. In the study, Hostility levels, Blood Lipids, Fasting Insulin, Blood Pressure, Body Measurement Index (BMI), Weight Hip Ration (WHR), Diet, Alcohol Intake, Smoking and Education Attainment were assessed over a three year period. Incidences of CHD were more common in those with higher levels of hostility than those with other risk factors such as high cholesterol, alcohol intake or smoking tobacco. Men with high levels of hostility, 5 to 8 times experienced at least one episode of CHD, during the 3 years of the study. Hostility in associated with and predicts incidents of CHD, above and beyond the influence of known risk factors that include blood lipid profiles, socio demographic characteristics, alcohol consumption and smoking. Hostility levels predicted incidences of CHD independent of protective effect of HDL. Men with higher levels of hostility were at greatest risk for developing CHD, independent of the effect of fasting insulin, BMI, WHR, triglyceride levels and blood pressure. High levels of hostility predisposes an individuals to CHD. Niaura suggests that mental health and health provides should continue to look at the effectiveness of providing psychological intervention for those individuals with high hostility levels. (<http://www.apa.org>).

In the present findings, hostility, and through that activation and familial stress could be effectively controlled by the intervention package of Natural Cure methods so that it can be interpreted an effective in controlling the patient's psychological casual factors and managing physiological variables like systolic and diastolic blood pressure, pulse, breath rate and body weight.

# RESUME OF THE STUDY

Baby Shari P. A. "A psychological analysis of natural cure methods in healing heart ailments" Thesis. Department of Psychology , University of Calicut, 2004

## Chapter V

### **RESUME OF THE STUDY**

Psychological or emotional factors lead to many physical illness, and physical problems also lead to distress and sadness. Hence there is a two way relationship between the psychological and physical aspects.

The impact of mind – body relationship is best understood by utilizing the biopsychosocial model, which assumes that, one's health state is based on biological, psychological and social factors. Negative emotions influence our psychoneural and hormonal system, lower immunity thus predispose one to several diseases. Disease which has got such kind of onset and continuation is known as psychosomatic disorder (now called as psychophysiological disorder). The number one psychosomatic killer in the world is heart disease.

Researchers had attempted for the assessment of casual pathogenic mechanism in cardiovascular disorder and to search either behavioural or physiological condition that lead to Coronary Artery Disease, a condition that leads to heart attack. Psychology and emotion are intimately related to disease of heart.

Behavioural influence on the development of atherosclerosis or on the pathophysiology of heart has been reported from the time of William Osler, the father of internal medicine who observed that the heart patient was frequently ambitious man, going full speed through life. Later cardiologists Friedman and Rosenman researched the connection between heart disease and type A personality.

Recent studies had reported many psychological factors like competition, aggression depression, anxiety, anger, fear, stress, social isolation, conflicts, disappointments, helplessness etc. along

with type A personality, as related to CHD. Recent researchers point out that all components of type A personality are not equally related to CHD but rather the deadly emotion, hostility, is the villain to make cardiac prone and stress worsen the situation.

Considerable body of evidence strongly suggests that anger and hostility might well be greater risk for heart disease than other risk factors. Though several theorists had tried to explain this, scientists argue that biochemical and hormonal effects from hostility might be involved.

Stress hormones cause the blood pressure to go up and increase the tendency of platelets to stick together. These changes may be responsible, for the hardening of arteries, including calcium deposits.

Indian personality concept, the '*trigunas*'-Inertia Activation and Stability theory also has been studied in relation to health. Mathew (1992) had proposed a theory that heart patients are more prone to have higher activation and stability. Domination of activation characteristics make one angry, tense, hurried, pressured, impatient, competitive, irritable etc so more likely to get heart disease, due to the increased arousal of sympathetic system which provide an overload to the cardiovascular system. If they have high stress, they will typically display elevated cortisol levels and exaggerated heart rate responses and abnormal coronary vasoconstriction characteristics that have been identified as possible risk factor of CAD. Studies had demonstrated that stress could worsen the health of heart which may cause even sudden death.

As a social being, a person can be studied in relation to his family, society and environment. Stressors can be present in any of these background so as to create a respective tension in the

individual. So stress can be effectively studied in these three dimensions.

In Indian set-up, especially in Kerala, studies are very rare which relate between hostility and heart disease. As there have been advances in Pharmacology, there has been an increasing trend for patients and families to see the root cause came of health problems as a 'chemical imbalance'. When a health problem arises, a relatively easy solution is to have patient take prescribed medication. By doing so, the answer to the problem is clear cut, requiring no behavioural or attitudinal change on the part of the patient or family. Medical advancement in different branches of medicine and health are remarkable, but many researchers and therapists believe that both psychological and social approaches need to be considered along with biological approach while working with health problems.

Various psychological interventions are used to prevent or control heart disease are relaxation training, self monitoring of type A behaviour, Stress management, hostility management, cognitive restructuring, supportive counselling by hospital staff, reduction in risky behaviour (smoking, fat diet, over weight etc.) meditations, exercise and others. Several researchers believe that psychosocial treatments are found to be very effective.

The present study had aimed to explore the psychological variables, namely personality dimension - Inertia, Activation and Stability, Stress - through familial, social and environmental dimensions and hostility of heart patients and normals in the first phase. In the second phase the study also had aimed to provide an intervention package (natural methods) to a few subject (heart patients) and to do a comparative study with another group of subjects (heart patients) who is undergoing medical intervention

alone , so that a psychological analysis of the natural cure methods in healing of heart ailments were proposed to study.

As mentioned earlier, the study included two phases. In the phase I, 105 heart patients and 105 normals, who do not have any reported or diagnosed disorder/symptoms were studied using IAS. Rating Scale (Mathew, 1992) S.S. inventory (Shibu & Dharmangadhan 1992) and Hostility Scale (Baby Shari, and Baby, J. 2000) so as to explore the variables, IAS dimensions of Personality. Stress (in familial, social and environmental dimensions) and Hostility. Hostility scale was newly prepared and standardized by the investigators for this purpose. The above mentioned scientific tools were administered among the sample and data were collected, statistically analysed and discussed.

In the second phase only heart patients were taken as the sample. Those who are following the usual medical intervention were selected as the control group where as the experimental group had undergone the treatment package of Natural Cure methods. Pre intervention- Post intervention Comparison were used in this phase.

Before the intervention, the sample (both experimental and control group) had undergone psychological assessment just as in Phase I. More over physiological variables like body weight, breath rate, pulse and blood pressure were also assessed using appropriate instruments.

Later the experimental group had undergone the natural cure methods which were specially designed to provide equal weight age to biological, psychological and social aspects of the patients. The subjects were not provided any mental or physical torture in the intervention, where as their voluntary participation only was sought.

They had the permission to discontinue or quit the programme, at any time they want.

The intervention programme was given and taught as 7 days residential camp in which the investigator, other experts in natural living, diet, yoga counselling, aesthetics etc. live together and simple living were practiced. Later the patients went home. A follow up was done on 21<sup>st</sup> and 41<sup>st</sup> day, in which everybody gathered again and did clarification of their doubts and shared experiences.

The total program, included five different strategies namely Natural Diet, Yogasana and Meditation, Panchabhuta Upasana, Self Expression Programmes, and Psychological Counselling.

These 5 strategies are taught in the 7 days camp through training, classes, practices, simple living etc and the subjects were allowed to go home and were advised to practice these at home. If they break any of these strategies, they were advised to note it down. Two follow ups were done on 21<sup>st</sup> and 41<sup>st</sup> day, for doubt clarification and sharing of experiences. On the 41<sup>st</sup> day, post intervention assessments were done and their self reports were also collected.

Natural Cure methods are not trying to control symptoms, by providing stimulants or depressants, but rather find the causal factors in the life style or living conditions of the patients and tries to correct the cause and expect a respective improvement in health. In the Psychological analysis of the Natural Cure methods, it can be seen that the major psychological casual factor, hostility, lead one to heat disease and its symptoms (revealed through phase I) and also to some other precipitating causes like (increased stress and activation. These factors could be controlled through Natural Cure methods, as the 5 strategies provided in the intervention, could

decrease stress and increase stability and the patients were felt better.

Pre and post intervention assessments were scored and compared. Moreover another assessment were done in the control group and those were scored and used to compare with that of the experimental group. The data were subjected to 't' test to study the significance of mean difference. The findings from the study are as follows :

- a) The natural cure were methods are effective in decreasing activation dimension and increasing stability dimensions among heart patients.
- b) The intervention program could effectively control the familial stress of the heart patients.
- c) Overall stress could be decreased through the intervention programme provided by the investigator.
- d) Hostility could be decreased significantly using the intervention programme provided by the investigators.
- e) Systolic and diastolic blood pressure, pulse, breath rate, and body weight could be effectively decreased to the normal level, using the intervention program of natural cure methods provided in the study.

### **Major Findings of the study**

#### **I Relationship among variables**

1. There is significant negative relationship between inertia and activation

2. There is significant negative relationship between activation and stability
3. There is significant negative relationship between inertia and social stress.
4. There is significant relation between activation and familial stress, social stress, environmental stress and overall stress.
5. There is significant relation among the different dimensions of stress.
6. Inertia and hostility is negatively related
7. There is very high significant relation between activation and hostility
8. Hostility is positively and significantly related to the overall stress and to its different dimension.

## **II** Difference between Normals and Patients

1. Normals have significantly high inertia and stability, than heart patients
2. Heart patients have significantly high activation than normals.
3. Stress and its different dimension are found to be very high among heart patients compared to normals.
4. Hostility is found to be very high among heart patients compared to normals.

## **III** Effect of Personal and Demographic Variables

1. No gender difference was found in stress and hostility.
2. Stress and hostility differ among different age groups.

3. Religion has no influence on stress and hostility, except on environmental stress.
4. Subjects from village experience more stress and hostility
5. Married subjects experience more stress and hostility
6. Occupational status has no role in familial, social and environmental stress and hostility.
7. Perceived Health Status has direct role in stress and hostility.

#### **IV Interaction Among Variables**

1. There is no interaction effect of personality and groups on stress
2. Hostility had an interactive effect upon personality dimensions and group
3. The higher scores activation and hostility are found among cardiac patients.
4. Higher rates of hostility also leads to stress.
5. Activation and stress (familial) are the predictors of hostility

#### **Phase II**

1. Intervention of natural cure methods were effective to decrease activation and increase stability dimensions of the heart patients, where as inertia is unaffected by the intervention.
2. The intervention provided in the study was effective to reduce stress among heart patients.
3. Hostility could be effectively controlled through the intervention

4. The Physiological variables like blood pressure, pulse, breath rate, body weight etc. could be effectively controlled through the intervention.
5. The Psychological casual factors could be effectively managed through the intervention strategies and the expected results in psychological and physiological variables could be established.

### **Limitations and suggestions**

1. Only some districts of Kerala was covered in the present study.
2. Present study had explored only three dimension of stress. Different dimensions of stress can be studied.
3. Different related personality variables can be studied.
4. Physiological variables related to blood pressure, respiration and body weight only are included in the study. Different related variables like blood, urine analysis, ECG, etc can be included. Advanced technology to study the cardiac functioning can be included.
5. The study didn't investigate the individual contribution of the various intervention strategies in the package.

### **Further Scope of the study**

1. The study can be extended by considering the physiological variables like blood, urine analysis, assessments of atherosclerosis etc.
2. The patient group of the present study didn't include inertia dominating personality.. So further extension of similar study can be planned by increasing number of subjects.

3. Study can be extended by studying patients who follow all the strategies of intervention except raw diet (like those who follow Naturopathy).
4. Intervention for a long duration, with more follow up can be done , if subjects are available.
5. In the present study, the experimental group of Phase I, had studied, when they already experience the disorder (ie patients were one of the samples). A long term study can be planned in such a way that, the subjects have to be studied in their young adulthood or middle age, so that their psychological variables can be studied, well in advance before having any diagnosed or reported disorders and after a long duration it can be searched whether the high hostile group is more to the heart ailments. It will be a very long term study then, but the variables can be explored more reliably.
6. In the intervention provided in the present study 5 different strategies were used. Though it will be more time, energy and money consuming, further study can be planned by providing these different strategies in different combinations, so that effect of different strategies can be studied separately and in combinations.

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# **A P P E N D I C E S**

# MATHEW IAS RATING SCALE

V. George Mathew, Ph. D.  
1995

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Malayalam version

ഒരു വ്യക്തിയിലുള്ള തത്വാരോധനഗുണങ്ങളുടെ എണ്ണക്കുറച്ചിലുകൾ അളക്കുന്ന ഒരു ചോദ്യാവലിയാണ് ഇത്. ഇതുപയോഗിച്ച് സമ്പന്ന വ്യക്തിത്വങ്ങൾ മറ്റൊരാളുടെ വ്യക്തിത്വവുമായി അളക്കാവുന്നതാണ്.

ഈ കടലാസ്സിൽ ഒന്നും എഴുതരുത്. പ്രത്യേകം തിരിച്ചെഴുതുന്ന ഉത്തരകടലാസ്സ് ഉപയോഗിക്കുക.

ഓരോ 35 സ്കെയിലുകളും കൊടുത്തിരിക്കുന്നു. ഓരോന്നിലും I, A, S എന്ന് പേര് കൊടുത്തിട്ടുള്ള മൂന്ന് സ്വഭാവ വർണനകളുണ്ട്. ഈ മൂന്ന് ഉത്തരങ്ങളിലായി പ്രതികരണം ചെയ്യാൻ 3 പോയിന്റുകൾ തന്നിരിക്കുന്നു. കഴിയുന്നത്ര വസ്തുനിഷ്ഠമായി പോയിന്റുകൾ വിതരിക്കുക. വ്യക്തിയുടെ പെരുമാറ്റത്തിൽ മൂന്നു ഗുണങ്ങളും (ശീലങ്ങളും) തുല്യമായിട്ടാണ് കാണപ്പെടുന്നതെങ്കിൽ പോയിന്റുകൾ തുല്യമായി (1, 1, 1) വിതരിക്കുക. വ്യക്തിയിൽ ഒരു ഗുണം മാത്രമേ ഉള്ളൂ, മറ്റു രണ്ടുഗുണങ്ങളും ഇല്ല എന്ന് നിങ്ങൾക്ക് തോന്നുന്നുവെങ്കിൽ ഉള്ള ഗുണത്തിന് 3 പോയിന്റും മറ്റു രണ്ടുഗുണങ്ങൾക്കും 0 വീതവും കൊടുക്കുക. വ്യക്തിക്ക് ഒരു ഗുണം കൂടുതലായും മറ്റൊന്ന് സാമാന്യമായും ഉണ്ടെന്നും മൂന്നാമത്തെ ഗുണം ഇല്ലെന്നും തോന്നിയാൽ പോയിന്റുകളെ 2, 1, 0 എന്ന് ഭാഗിക്കാവുന്നതാണ്. ഒരു സ്കെയിലിലെ ഉത്തരങ്ങളുടെ പോയിന്റുകൾ ഉത്തരകടലാസ്സിൽ ആ സ്കെയിലിന്റെ അമ്പതിനു നേർക്ക് ഉത്തരങ്ങളുടെ പേരിനു താഴെ എഴുതുക. ഒരു സ്കെയിലിന്റെ ഉത്തരങ്ങൾക്ക് കൊടുക്കുന്ന പോയിന്റുകളുടെ ആകെത്തുക 3 രൂപയിരിക്കണമെന്ന് ഓർമ്മിക്കുക. സ്കെയിലുകൾ ഒന്നും വിട്ടുകളയാരുത്.

### 1. പ്രവർത്തന ക്ഷമത

- I പ്രവർത്തന വിമുഖത, വേണ്ടപ്പോൾ വേണ്ടത് ചെയ്യാതിരിക്കുക, നിഷ്ക്രിയത്വം
- A അടക്കമില്ലായ്മ, ആവശ്യത്തിൽകൂടുതൽ പ്രവർത്തിക്കുക, അസ്ഥമായ പ്രവർത്തനം
- S വേണ്ടസമയത്ത് വേണ്ടത് ചെയ്യുക, ആത്മ നിയന്ത്രണമേതാടുകൂടിയ പ്രവർത്തി, നിഷ്കാമകർമ്മം

### 2. ഉന്മേഷം

- I മടി, ആലസ്യം, ഉന്മേഷക്കുറവ്
- A അധികാരം, നിയന്ത്രണമില്ലായ്മ
- S ആവശ്യമായ നിയന്ത്രിതമായ ഉന്മേഷം.

### 3. വേഗത

- I വേഗതക്കുറവ്, തെറ്റുണ്ടാകുമോ എന്ന ഭയം
- A അമിത വേഗത, പതുക്കെ പ്രവർത്തിക്കാൻ പ്രയാസം
- S വേഗത്തിലും കൃത്യമായുള്ള പ്രവർത്തി, ആവശ്യമനുസരിച്ചുള്ള വേഗത

### 4. കൃത്യനിഷ്ഠ

- I താമസിച്ചു വരിക, ചൊയ്യേണ്ടസമയത്ത് മോലികൾ ചെയ്യാതിരിക്കുക
- A ധൃതി, ക്ഷമയില്ലായ്മ
- S കൃത്യനിഷ്ഠ

### 5. മാഴ്ചുപ്പാട്

- I ഇപ്പോഴത്തെ പ്രശ്നങ്ങളെപ്പറ്റിമാത്രം ചിന്തിക്കുക
- A ദാരിദ്ര്യം, കാര്യങ്ങൾ കാര്യക്ഷമമായി ആസൂത്രണം ചെയ്യുക
- S വിശാലമായ മാഴ്ചുപ്പാട്, ദാർശനിക ചിന്ത, വിവേകം

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6. മാനസിക വ്യാപാരം

- I ചിന്താശീലം ഇല്ലായ്മ
- A പ്രായോഗിക, കാര്യബോധം ക്ലേശബോധം
- S ഉൾക്കാഴ്ച, ആത്മജ്ഞാനം, ബോധം, ഉണർവ്

7. സാഹസികത

- I സാഹസികത ഒട്ടും ഇല്ലാതിരിക്കുക
- A അമിതമായ സാഹസികത
- S ആവശ്യമായ, മിതമായ കണക്കുകൂട്ടിയുള്ള സാഹസികത

8. സ്വാഭാവം

- I പിൻവലിയുന്ന സ്വഭാവം, മാനസികമായ ഒളിച്ചോട്ടം
- A എടുത്തുപാട്ടം, വിമോചനവിചാരമില്ലായ്മ
- S മിതത്വം, പക്ഷത

9. ധൈര്യം

- I ഭീരുത്വം
- A അസ്ഥമായ, ശാരീരികമായ ധൈര്യം
- S മാനസിക ശക്തിയും ധൈര്യവും, വിശ്വാസ ദാർഢ്യം, മനക്കരുത്ത്

10. ജീവിതത്തോടുള്ള സമീപനം

- I വിചാരപ്പെടുക, ഒഴിഞ്ഞുമാറുക
- A പിടിച്ചുപറ്റുക, കയറിക്കയറുക, പിടിച്ചടക്കുക
- S ഉറപ്പുള്ളതായ, തുറന്ന മനസ്സാക്കി, ആസക്തിയില്ലായ്മ

11. ചോരന

- I അപ്രായോഗികമായ മോഹങ്ങൾ, ദിവാസാപ്തങ്ങൾ
- A തീവ്രമായ ദുരാഗ്രഹവും അതിമോഹവും, അവയ്ക്ക് വേണ്ടിയുള്ള ശ്രമവും
- S സംതൃപ്തി, പുർണ്ണത

12. അനുഭവബോധം

- I ആധി, വിഹാരം
- A ഉന്മാദം, ഇളക്കം, ഹിസ്റ്റീരിയ
- S ശാന്തി, സന്തുലിതാവസ്ഥ

13. വൈകാരികത

- I വൈകാരികത ഇല്ലായ്മ
- A തീവ്രവും തീക്ഷ്ണവുമായ വികാരം, ബന്ധങ്ങൾ
- S നിയന്ത്രിതമായ ഉദാത്തീകരിക്കപ്പെട്ട നിർവ്വീകാരത

14. ഇച്ചാശക്തി

- I ദുർബ്ബലമായ ഇച്ചാശക്തി
- A ആത്മനിയന്ത്രണത്തിനുള്ള തീവ്രശ്രമം, ആന്തരിക സംഘർഷം
- S സ്വാഭാവികമായ പുഷ്പ്ണ ആത്മ നിയന്ത്രണം

15. അവകാശബോധം കടമകളും

- I സ്വന്തം അവകാശബോധമുള്ളതും കടമകളെയും പറ്റി ബോധവാനല്ലാതിരിക്കുക
- A അവകാശങ്ങൾക്കുവേണ്ടി പൊതുതരം, പക്ഷെ സ്വന്തം കടമകളെപ്പറ്റി ബോധവാനല്ലാതിരിക്കുക
- S കടമകളെയും അവകാശങ്ങളെയുംപറ്റി ബോധവാനായിരിക്കുകയും അതനുസരിച്ച് പ്രവർത്തിക്കുകയും ചെയ്യുക

16. നേതൃത്വം

- I നേതൃത്വം വഹിക്കാനോ മറ്റുള്ളവരെ നയിക്കാനോ ഉള്ള കഴിവില്ലായ്മ
- A സമ്പന്നാധിപത്യ പ്രവണത, അധികാരഭ്രമം, അഹന്ത, അനുയായി ആയിരിക്കാനുള്ള കഴിവില്ലായ്മ
- S സനാധിപത്യ മാതൃകയിലുള്ള നേതാവ്, സന്ദർഭമനുസരിച്ച് നേതാവോ അനുയായിയോ ആയി പ്രവർത്തിക്കാനുള്ള കഴിവ്

17. പ്രതികരണശേഷി

- I പ്രതിരോധിക്കാനോ, വാദിക്കാനോ, ചോദിച്ചു വാങ്ങാനുമുള്ള കഴിവില്ലായ്മ
- A അധികാര പ്രതിരോധം, നിഷ്പന്നമമായി സഹിക്കാനുള്ള കഴിവില്ലായ്മ, ധിക്കാരം
- S സന്ദർഭമനുസരിച്ച് നിഷ്പന്നമമായി സഹിക്കാനോ ശക്തമായി പ്രതികരിക്കാനോ ഉള്ള കഴിവ്

18. കോപം

- I കോപംഭാവിക്കാനുള്ള കഴിവില്ലായ്മ
- A മുൻകോപം, കോപം നിയന്ത്രിക്കാൻ കഴിവില്ലായ്മ.
- S വാസ്തവത്തിൽ ആരത നിയന്ത്രണം വിടാതെ കോപം അഭിനയിക്കാനുള്ള കഴിവ്

19. നീതിബോധം

- I ചൂഷണത്തിന് വിധേയനാകുക
- A മറ്റുള്ളവരെ ചൂഷണം ചെയ്യുക
- S മറ്റുള്ളവരോടും തന്നോട് തന്നെയും നീതിപൂലർത്തുക

20. മറ്റുള്ളവരുടെ ബന്ധം

- I വികാരങ്ങൾ പൊട്ടിച്ച് മുറിപ്പെടുക, ദുർബ്ബലത
- A തൊലിക്കട്ടി, താൻകാര്യക്കാരൻ
- S ദയ, കാര്യബുദ്ധി, സ്നേഹം, ദീനാനുകമ്പ

21. സ്വത്തുടമസ്ഥതയുടെ ബന്ധം

- I സ്വന്തം സ്വത്തുകൾ സൂക്ഷിക്കാനുള്ള കഴിവില്ലായ്മ
- A മമത, ദുരാഗ്രഹം, അഹംഭാവം, മിഥ്യഭിമാനം
- S പരദാനം, നിസ്സംഗത്വം

22. ആത്മവിശ്വാസം

- I അപകർഷതാ ബോധം
- A വിസ്മയപരമായി, അംഗീകാരത്തിനുവേണ്ടിയുള്ള തൃപ്തി
- S ആത്മസംതൃപ്തി, ആത്മവിശ്വാസം

23. മൂല്യങ്ങൾ

- I സുഖത്തെ മാത്രം വിലമതിക്കുക, മൂല്യങ്ങളുടെ അഭാവം
- A അധികാരം, പ്രശസ്തി, പദവി ഇവയെ വിലമതിക്കുക
- S സൗഹൃദം, വിവേകം, സ്വഭാവശുദ്ധി ഇവയെ വിലമതിക്കുക

24. ആക്രമണാസക്തി

- I ആരമപീഡനം, കടുത്തബോധം, തനിക്കുവേണ്ടി വാദിക്കാൻ കഴിവില്ലാതിരിക്കുക
- A മറ്റുള്ളവരെ വേദനിപ്പിക്കാനും ശിക്ഷിക്കാനും പ്രയാസം തോന്നാതിരിക്കുക
- S മറ്റുള്ളവരോടും തന്നോടും ക്ഷമിക്കുക

25. അപരിചിതരുടെ ഇടയിലുള്ള മനോഭാവം

- I അപരിചിതരോട് ഇടപെടാൻ പ്രയാസം തോന്നുക
- A ആശങ്കയും പെട്ടെന്ന് ഇടപെടുക, തനിച്ചിരിക്കാൻ പ്രയാസം തോന്നുക
- S വാദിപ്പിക്കാനോ, ആലോചനയോടെ ഇടപെടാനോ ഒരുപോലെ സാധിക്കുക, പക്ഷേ തിരഞ്ഞെടുത്ത കൂടെ അടുത്ത സുഹൃത്തുക്കൾമാത്രം ഉണ്ടായിരിക്കുക

26. ആളുകളുമായുള്ള ഇടപെടൽ

- I മറ്റുള്ളവരുമായി അധികം ഇടപെടാൻ ഇഷ്ടപ്പെടാതിരിക്കുക
- A ധാരാളം പേരുമായി ഇടപഴകാൻ ഇഷ്ടപ്പെടുക, ഏകാന്തത സഹിക്കാൻ പ്രയാസം തോന്നുക
- S തനിച്ചിരിക്കുന്നതും മറ്റുള്ളവരുടെ കൂടെ ഇരിക്കുന്നതും ഒരുപോലെ ഇഷ്ടപ്പെടുക

27. പ്രസംഗം

- I പ്രസംഗം നടത്താൻ പരിശ്രമവും ബുദ്ധിമുട്ടും തോന്നുക
- A സംസാരിക്കാൻ ഇഷ്ടപ്പെടുക, മിണ്ടാതിരിക്കാൻ പ്രയാസം തോന്നുക
- S സംസാരം കേൾക്കുന്നതും പ്രസംഗിക്കുന്നതും രണ്ടും ഒരുപോലെ ഇഷ്ടപ്പെടുക

28. എതിർലിംഗം

- I എതിർലിംഗക്കാരുമായി ഇടപെടാൻ പ്രയാസം അനുഭവപ്പെടുക
- A എതിർലിംഗക്കാരുമായി അങ്ങോട്ടുകയറി ഇടപെടുക
- S ലൈംഗികത തരണം ചെയ്യുക, ഉദാത്തീകരിക്കുക.

29. സാമൂഹ്യ കീഴ്വഴക്കങ്ങൾ

- I അന്ധമായി സാമൂഹ്യകീഴ്വഴക്കങ്ങളെ അനുസരിക്കുക
- A മനപ്പൂർവ്വം കീഴ്വഴക്കങ്ങളെ ലംഘിക്കുക, മാതൃക ബുദ്ധി
- S സ്വതന്ത്ര ചിന്തയും പ്രവർത്തിയും, സാമൂഹ്യപരിഷ്കർത്താവ്

30. സൗഹൃദം

- I ശക്തമായ സുഹൃത് ബന്ധങ്ങൾ ഇല്ലാതിരിക്കുക
- A തീവ്രമായ വൈകാരിക ബന്ധങ്ങൾ, സ്വാർത്ഥമായ സ്നേഹവും വിരോധവും
- S നിസ്വാർത്ഥ സ്നേഹം, കരുണ

31. സാമൂഹ്യ താരാത്മീകരണം

- I സമൂഹവുമായി ശക്തമായ ബന്ധം ഇല്ലാതിരിക്കുക
- A താരതമ്യേന അടുത്ത സന്തം സമൂഹവുമായി വൈകാരികമായ ബന്ധം ഉണ്ടായിരിക്കുക, ശക്തമായ ദേശസ്നേഹം
- S എല്ലാവരുമായി, എല്ലാ ജീവജാലങ്ങളുമായി വിശാലമായ താരാത്മീകരണം

32. ധർമ്മിക ബോധം

- I തെറ്റ് - ശരി ഇവയെപ്പറ്റി ചന്തിക്കാതിരിക്കുക, ദുർബ്ബലമായ മനസ്സാക്ഷി
- A ശക്തമായ മനസ്സാക്ഷി, കുറ്റബോധം, ധർമ്മിക സംഘർഷം
- S സ്നേഹാധിഷ്ഠിതമായ ധർമ്മികബോധം, സഹജമായ ആന്തരിക നിയന്ത്രണം

33. വിശ്വാസങ്ങൾ

- I ഭയത്തിൽനിന്നും അനിശ്ചിതത്വത്തിൽ നിന്നും രക്ഷപ്പെടാൻ വേണ്ടിയുള്ള വിശ്വാസങ്ങൾ
- A ആത്മനിയന്ത്രണത്തിനു സഹായിക്കുന്ന വിശ്വാസങ്ങൾ
- S ഉൾക്കാഴ്ച, തുറന്ന മനസ്ഥിതി, അനിശ്ചിതത്വം പ്രയാസകരമായി തോന്നാതിരിക്കുക

34. വസ്തുവികത

- I ദാർശനികമായ കാര്യങ്ങളെപ്പറ്റി ചിന്തിക്കാതിരിക്കുക, ലോകം അയഥാർത്ഥമായി അംഗീകരിക്കാൻ തയ്യാറാവുക
- A പ്രയോഗികത, ലോകം പൂർണ്ണയാഥാർത്ഥ്യമാണെന്നു കരുതുക
- S തുറന്ന മനസ്ഥിതി, ലോകം ഒരുതൂങ്ങുന്ന നിവയ്ക്ക് വാസ്തവമായും ഭൗതികതീതമായ വാസ്തവീകതയുമായി താരതമ്യപ്പെടുത്തുമ്പോൾ അയഥാർത്ഥ്യമായും കാണുക

35. വിധി

- I വിധി, ഭാഗ്യം, ഇവയിൽ മാത്രം വിശ്വസിക്കുക
- A മനുഷ്യ പ്രയത്നത്തിന്റെ മൂല്യം, സ്വതന്ത്രമായ ഇച്ഛാശക്തി ഇവയിൽമാത്രം വിശ്വസിക്കുക
- S മനുഷ്യ പ്രയത്നവും ഇച്ഛയും വിധിയാകുന്ന ചങ്ങലയുടെ കണ്ണികളായി കാണുക

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**V. George Mathew, Ph.D.**  
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**1992**

നിത്യജീവതത്തിൽ, വിവിധ തരങ്ങളിൽ നമുക്ക് നേരിടേണ്ടിവരുന്ന പല സന്ദർഭങ്ങളും സംഭവങ്ങളും ഉണ്ട്. അവയെ അഭിമുഖീകരിക്കുമ്പോൾ നമുക്ക് മാനസിക സമ്മർദ്ദവും സംഘർഷവും (Stress) അനുഭവപ്പെടാറുണ്ട്. എന്നാൽ ഇവ എല്ലാവർക്കും ഒരുപോലെല്ല അനുഭവപ്പെടുന്നതു്. നിങ്ങൾക്ക് അവ നേരിടേണ്ടിവരുന്നപ്പോൾ എത്രമാത്രം മാനസിക സമ്മർദ്ദം അനുഭവപ്പെടുന്നു എന്നറിയുന്നതിനായി അത്തരം സന്ദർഭങ്ങളെ പ്രതിനിധീകരിക്കുന്ന കുറെ പ്രസ്താവനകൾ കൊടുത്തിരിക്കുന്നു. അവ ഓരോന്നും ശ്രദ്ധാപൂർവ്വം വായിച്ചു നോക്കി അത്തരം സന്ദർഭങ്ങളിൽ എത്രമാത്രം മാനസിക സമ്മർദ്ദം നിങ്ങൾക്ക് അനുഭവപ്പെടുന്നു എന്നുള്ളതു് രേഖപ്പെടുത്തുക.

ഒരു സന്ദർഭം അഭിമുഖീകരിക്കുമ്പോൾ നിങ്ങൾക്ക് വളരെയധികം മാനസിക സമ്മർദ്ദം അനുഭവപ്പെടുകയാണെങ്കിൽ 'A' എന്നതിനു് ചുറ്റും വലയമിടുക. മാനസിക സമ്മർദ്ദം തീരെ അനുഭവപ്പെടുന്നില്ലെങ്കിൽ 'E' എന്നതിനു ചുറ്റും വലയമിടുക. മിതമായി അനുഭവപ്പെടുന്നെങ്കിൽ (ഒന്നും തീർച്ചയായിരിക്കാൻ കഴിയുന്നില്ലെങ്കിൽ) 'C' എന്നതിനു ചുറ്റുമാണ് വലയമിടേണ്ടതു്. മാനസിക സമ്മർദ്ദം ഇതിനടിയിലാണെങ്കിൽ തോതനുസരിച്ച് 'B' 'D' എന്നിവയിൽ ഏതെങ്കിലും ഒന്നിൽ വലയമിടുക. ദയ്യമായി എല്ലാ പ്രസ്താവനകൾക്കും ഉത്തരം രേഖപ്പെടുത്താൻ പ്രത്യേകം ശ്രദ്ധിക്കേണ്ടതാണ്.

മാനസിക സമ്മർദ്ദം  
അനുഭവപ്പെടുന്ന തോത്

**A**

	വളരെയധികം	അധികം	അറിഞ്ഞുകൂടാ	കുറയാകെ	ഒട്ടുമില്ല
1. കടുബത്തിനുവേണ്ടി കാര്യമായി ഒന്നും ചെയ്യാൻ എനിക്ക് പറ്റാത്തതു്	A	B	C	D	E
2. കടുബംഗങ്ങളിൽ ചിലരുടെ ഉത്തരവാദിത്വമില്ലായ്മ	A	B	C	D	E
3. കട്ടികൾ പരുഷമായി പെരുമാറുകയോ തർക്കത്തോ പരാധീനതയോ ചെയ്യുന്നതു്	A	B	C	D	E
4. കടുബംഗങ്ങളുടെ അനാരോഗ്യം	A	B	C	D	E
5. കടുബംഗങ്ങളുടെ സ്വരചർച്ചയില്ലായ്മ	A	B	C	D	E
6. അർഹിക്കുന്ന പരിഗണന വീട്ടിൽനിന്നും കിട്ടാത്തതു്	A	B	C	D	E
7. എനിക്കുവേണ്ടി ചെലവഴിക്കാൻ സമയം കിട്ടാത്തതു്	A	B	C	D	E
8. എന്റെ വ്യക്തിസ്വതന്ത്ര്യത്തിൽ കടുബംഗങ്ങൾ കൈകടത്തുന്നതു്	A	B	C	D	E
9. വീട്ടിൽ വേണ്ടത്ര സമയം ചെലവഴിക്കാൻ പറ്റാത്തതു്	A	B	C	D	E
10. കടുബത്തോടുള്ള കഠിന നിറവേറ്റാൻ കഴിയാത്തതു്	A	B	C	D	E

**B**

	വളരെയാധികം	അധികം	അറിഞ്ഞുകൂടാ	കുറവായാകെ	ഒട്ടരില്ല
11. യോഗ്യതയില്ലാത്തവർ ഉന്നത സ്ഥാനങ്ങളിലിരിക്കുന്നത്	A	B	C	D	E
12. സാങ്കേതിക വിദ്യയുടെ പുരോഗതി ജീവിതം കൂടുതൽ യാത്രാകമാക്കിത്തീർക്കുന്നത്	A	B	C	D	E
13. വർഗ്ഗീയ ലഹളകൾ വർദ്ധിച്ചുവരുന്നത്	A	B	C	D	E
14. മതപരമായ ചടങ്ങുകൾ ആളുകളെ സ്വാധീനിക്കുന്നത്	A	B	C	D	E
15. സംസ്ഥാനത്ത് ഭരണ സ്ഥിരതയില്ലാത്തത്	A	B	C	D	E
16. സമരം, ബന്ധം, ഘെരാവോ എന്നിവ ഉണ്ടാകുന്നത്	A	B	C	D	E
17. വരൾച്ചയും, മറ്റും പ്രകൃതിക്ഷോഭങ്ങളുണ്ടാകുന്നത്	A	B	C	D	E
18. സാമൂഹികദ്രോഹ പ്രവൃത്തികൾ വർദ്ധിച്ചുകൊണ്ടിരിക്കുന്നത്	A	B	C	D	E
19. ജാതി വ്യത്യാസം നിലനില്ക്കുന്നത്	A	B	C	D	E
20. തീവ്രവാദി പ്രവർത്തനങ്ങൾ ഉണ്ടാകുന്നത്	A	B	C	D	E

**C**

21. നിരന്തരമായ ശബ്ദകോലാഹലങ്ങൾ	A	B	C	D	E
22. ആവശ്യമായ സ്വകാര്യത വീട്ടിൽനിന്നും കിട്ടാത്തത്	A	B	C	D	E
23. അന്തരീക്ഷ മലിനീകരണം	A	B	C	D	E
24. ചൈതന്യങ്ങളിൽ വീട്ടിൽ സ്വസ്ഥമായിരുന്ന വിശ്രമിക്കുന്നതിനുള്ള അസൗകര്യം	A	B	C	D	E
25. അയൽക്കാർ എന്റെ സ്വൈര്യം നഷ്ടപ്പെടുത്തുന്നത്	A	B	C	D	E
26. ഒരു സ്ഥലത്തു തന്നെ ഏറെനേരം കഴിയേണ്ടിവരുന്നത്	A	B	C	D	E
27. പൊതു വാഹനങ്ങളിലെ തിരക്ക്	A	B	C	D	E
28. തിരക്ക് കൂടിയ നഗരാന്തരീക്ഷത്തിലെ ജീവിതം	A	B	C	D	E
29. അടുക്കൂം ചിട്ടയുമില്ലാത്ത ചുറ്റുപാടിൽ കഴിയേണ്ടിവരുന്നത്	A	B	C	D	E
30. വീടുകൾ തമ്മിലുള്ള അകലം കുറയുന്നത്	A	B	C	D	E

സൂചി / പുരുഷൻ

വയസ്സ് \_\_\_\_\_

വിദ്യാഭ്യാസം \_\_\_\_\_

കുടുംബത്തിലെ മാസവരുമാനം \_\_\_\_\_

താമസ സ്ഥലം: പട്ടണം / ഗ്രാമം

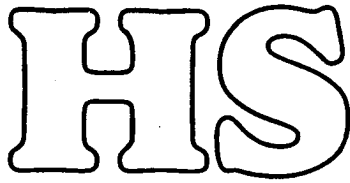
മതം \_\_\_\_\_

ജോലി: ഉണ്ട് / ഇല്ല

1) ഉണ്ടെങ്കിൽ: ഗവൺമെന്റ് / പ്രൈവറ്റ്

2) ജോലിസ്ഥലം: പട്ടണം / ഗ്രാമം

ആരോഗ്യനില: വളരെ മോശം / മോശം / തൃപ്തികരം / നല്ലത് / വളരെ നല്ലത്



**UNIVERSITY OF CALICUT  
DEPARTMENT OF PSYCHOLOGY**

A PSYCHOLOGICAL SCALE DEVELOPED BY

Baby Shari P.A.  
Lecturer

&

J. Baby  
Reader

**HOW TO ANSWER:** The following are statements about our feelings and reactions when we face unpleasant behaviour from others or unpleasant situations. How far these statements are true about you. Your answers may be marked using a ✓ in the columns for

- always true
- sometimes true
- rarely true
- never true.

(You need not write your name or address in this questionnaire).

**ഉത്തരമെഴുതേണ്ട രീതി:** മറ്റുള്ളവരിൽനിന്ന് അസ്വാസ്ഥ്യകരമായ പെരുമാറ്റങ്ങൾ ഉണ്ടാകുമ്പോഴോ അസ്വാസ്ഥ്യകരമായ അവസരങ്ങൾ നേരിടുമ്പോഴോ നമുക്കുണ്ടാകാറുള്ള വികാരങ്ങളെക്കുറിച്ചും പ്രതികരണങ്ങളെക്കുറിച്ചുമുള്ള കൃപ പ്രസ്താവനകളാണ് താഴെ കൊടുത്തിരിക്കുന്നത്. അവ ഓരോന്നും നിങ്ങളെ സംബന്ധിച്ച് എത്രമാത്രം ശരിയാണ്/ശരിയല്ല എന്ന് വലതുവശത്തെ കോളത്തിൽ ✓ അടയാളമിട്ട് രേഖപ്പെടുത്തുക.

- എപ്പോഴും ശരിയാണ്
- ചിലപ്പോൾ ശരിയാണ്
- വല്ലപ്പോഴും ശരിയാണ്
- ഒരിക്കലും ശരിയല്ല

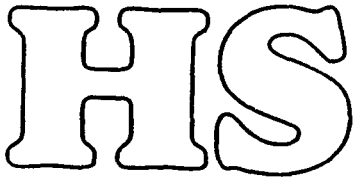
എന്നിവയ്ക്കായുള്ള കോളങ്ങളിൽ ഉത്തരം അടയാളപ്പെടുത്തുക.  
(ഈ പ്രശ്നാവലിയിൽ നിങ്ങളുടെ പേരോ മേൽവിലാസമോ എഴുതേണ്ടതില്ല)

Statements പ്രസ്താവനകൾ		Always true എപ്പോഴും ശരിയാണ്	Sometimes true മിക്കപ്പോഴും ശരിയാണ്	Rarely true വല്ലപ്പോഴും ശരിയാണ്	Never true ഒരിക്കലും ശരിയല്ല
1	As per my experience it is better not to trust anybody ആരേയും വിശ്വസിക്കാതിരിക്കുകയാണ് നല്ലത് എന്നാണെന്റെ അനുഭവം,				
2.	I cannot but be in enmity with some people. ചിലരോട് ശത്രുതയിലാകാതിരിക്കാനാവില്ല				
3.	If I cannot agree I usually oppose യോജിക്കാനാവാത്തപ്പോൾ എതിർക്കുയാണ് എന്റെ പതിവ്				
4.	Any achievement is gained only through competition മത്സരംകൊണ്ടുമാത്രമേ എന്തെങ്കിലും നേടാനാകൂ				
5.	Certain natural sceneries gives me unlimited happiness ചില പ്രകൃതി ദൃശ്യങ്ങൾ അളവറ്റ ആഹ്ലാദം എന്നിങ്ങനെ നൽകാറുണ്ട്				

Statements പ്രസ്താവനകൾ		Always true എപ്പോഴും ശരിയാണ്	Sometimes true മിക്കപ്പോഴും ശരിയാണ്	Rarely true വല്ലപ്പോഴും ശരിയാണ്	Never true ഒരിക്കലും ശരിയല്ല
6.	I cannot spare those who provoke me എന്നെ പ്രകോപിപ്പിക്കുന്നവരെ എനിക്കു വെറുതെ വിടാനാവില്ല.				
7.	I am friendly with all. എല്ലാവരോടും എനിക്കു സൗഹൃദമാണുള്ളത്				
8.	I like pet animals വളർത്തുമൃഗങ്ങളെ എനിക്ക് ഇഷ്ടമാണ്				
9.	Nobody is trustworthy these days ഇക്കാലത്ത് ആരും വിശ്വസ്തരല്ല				
10.	I cannot stand children being tortured കുട്ടികൾ പീഠിപ്പിക്കപ്പെടുന്നത് എനിക്കു സഹി ക്കാനാവില്ല				
11.	I very much respect some people ചിലരോട് എനിക്ക് അതിയായ ആദരവുണ്ട്				
12.	I have the patience to face adverse situations. പ്രതിസന്ധിഘട്ടങ്ങളെ തരണം ചെയ്യാനുള്ള ക്ഷമാശീലം എനിക്കുണ്ട്				
13.	I cannot but argue whenever I hear falsehood ശരിയല്ലാത്തകാര്യം കേട്ടാൽ എനിക്കു തർക്കി ക്കാതിരിക്കാനാവില്ല				
14.	I can love even those who are hostile towards me. എന്നോടു പകയുള്ളവരെപോലും സ്നേഹിക്കാൻ എനിക്കു കഴിയും.				
15.	Some people irritate me. ചിലർ എന്നെ വെറുപ്പിക്കുന്നു				
16.	My style is to cooperate without much protest എതിർപ്പൊന്നുംകൂടാതെ സഹകരിച്ചുപോകുക യാണ് എന്റെ രീതി				
17.	Nobody can take capital out of me. എന്നെ ആർക്കും മുതലെടുക്കാനാവില്ല				
18.	I cannot see animals being teased മൃഗങ്ങളെ പീഡിപ്പിക്കുന്നത് കണ്ടുനില്ക്കാൻ എനിക്കാവില്ല				

	<p style="text-align: center;">Statements പ്രസ്താവനകൾ</p>	<p style="text-align: center;">Always true എപ്പോഴും ശരിയാണ്</p>	<p style="text-align: center;">Sometimes true മിക്കപ്പോഴും ശരിയാണ്</p>	<p style="text-align: center;">Rarely true വല്ലപ്പോഴും ശരിയാണ്</p>	<p style="text-align: center;">Never true ഒരിക്കലും ശരിയല്ല</p>
19.	<p>I wish I should not have enmity to anybody എനിക്കാരോടും ശത്രുതയുണ്ടാകരുതെന്നാണെന്റെ ആഗ്രഹം</p>				
20.	<p>I cannot but contempt certain people ചിലരെ പുച്ഛിക്കാതിരിക്കാനെന്നിക്കാവില്ല</p>				
21.	<p>Sometimes we may have to be antagonistic to some people ചിലപ്പോൾ ചിലരോട് നമുക്കു ശത്രുതയിലാകേണ്ടിവരും</p>				
22.	<p>It is safer to be suspicious towards everybody എല്ലാവരെയും ഒരു സംശയത്തോടെ വീക്ഷിക്കുകയാണ് സുരക്ഷിതം</p>				
23.	<p>It is better not to cooperate with social service activities സാമൂഹ്യസേവനപ്രവർത്തനങ്ങളോടൊന്നും സഹകരിക്കാതിരിക്കുകയാണ് നല്ലത്</p>				
24.	<p>I can forgive to any extent എത്ര വേണമെങ്കിലും ക്ഷമിക്കാൻ എനിക്കാകും.</p>				
25.	<p>I am impatient in adverse situations. പ്രതിസന്ധിഘട്ടങ്ങളിൽ ഞാൻ വളരെ അക്ഷമകാട്ടാറുണ്ട്.</p>				
26.	<p>I have only complaints about others മറ്റുള്ളവരെക്കുറിച്ച് പരാതി മാത്രമേ എനിക്കുള്ളൂ</p>				
27.	<p>I do not feel pity for anybody എനിക്കാരോടും ദയ തോന്നാറില്ല</p>				
28.	<p>My experiences made me a pessimist എന്റെ അനുഭവങ്ങൾ എന്നെയൊരു അശുഭാപ്തിവിശ്വാസിയാക്കി.</p>				
29.	<p>I believe, the tendency to fight is good. ആകമണ സ്വഭാവം നല്ലതാണെന്നാണ് ഞാൻ കരുതുന്നത്.</p>				
30.	<p>I wish I should love everybody without hating anybody ആരെയും വെറുക്കാതെ എല്ലാവരെയും സ്നേഹിക്കണമെന്നാണെന്റെ ആഗ്രഹം</p>				

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31.	I feel very much envious towards certain people വളരെയേറെ അസൂയ ചിലരോടൊക്കെ തോന്നാറുണ്ട്				
32.	I find it difficult to control my hostility towards certain people ചിലരോടുണ്ടാകുന്ന പക എനിക്കു നിയന്ത്രിക്കാൻ ബുദ്ധിമുട്ടു തോന്നാറുണ്ട്.				
33.	My anger towards some people will be for ever ചിലരോട് എനിക്കുള്ള ദേഷ്യം എക്കാലത്തും ഉണ്ടാകും				
34.	The behaviour of certain people brings in a lot of resentment in me ചിലരുടെ പെരുമാറ്റം എന്നിൽ വളരെ നീരസം ഉണ്ടാക്കാറുണ്ട്				
35.	I am optimistic ഞാൻ ഒരു ശുഭാപ്ത വിശ്വാസിയാണ്				
36.	I regard humility a good quality. വിനയം ഒരു നല്ല ഗുണമായി ഞാൻ കരുതുന്നു.				
37.	If somebody hurts us, we should definitely retaliate നമ്മളെ ആരെങ്കിലും ഉപദ്രവിച്ചാൽ തീർച്ചയായും പകരംവീട്ടുകതന്നെ ചെയ്യണം				
38.	Sometimes I fail to control my short temper മുൻകോപം നിയന്ത്രിക്കാൻ ചിലപ്പോൾ ഞാൻ പരാജയപ്പെടുന്നു				
39.	I see only injustice every where എല്ലായിടത്തും അനീതി മാത്രമേ ഞാൻ കാണുന്നുള്ളൂ.				
40.	I do not attempt to complain against injustice അനീതിക്കെതിരെ പരാതിപ്പെടാനൊന്നും ഞാൻ മുതിരാറില്ല				
41.	To be virtuous is more important than anything. നന്മയുള്ളവരായിരിക്കുക എന്നതാണ് മറ്റൊന്നിനേക്കാളും പ്രധാനം.				



**UNIVERSITY OF CALICUT  
DEPARTMENT OF PSYCHOLOGY**

A PSYCHOLOGICAL SCALE DEVELOPED BY

Baby Shari P.A.  
Lecturer

&

J. Baby  
Reader

**HOW TO ANSWER:** The following are statements about our feelings and reactions when we face unpleasant behaviour from others or unpleasant situations. How far these statements are true about you. Your answers may be marked using a ✓ in the columns for  
always true  
sometimes true  
difficult to say true or not  
never true.

(You need not write your name or address in this questionnaire).

**ഉത്തരമെഴുതേണ്ട രീതി:** മറ്റുള്ളവരിൽനിന്ന് അസ്വാസ്ഥ്യകരമായ പെരുമാറ്റങ്ങൾ ഉണ്ടാകുമ്പോഴോ അസ്വാസ്ഥ്യകരമായ അവസ്ഥകൾ നേരിടുമ്പോഴോ നമുക്കുണ്ടാകാറുള്ള വികാരങ്ങളെക്കുറിച്ചും പ്രതികരണങ്ങളെക്കുറിച്ചുമുള്ള കുറേ പ്രസ്താവനകളാണ് താഴെ കൊടുത്തിരിക്കുന്നത്. അവ ഓരോന്നും നിങ്ങളെ സംബന്ധിച്ച് എത്രമാത്രം ശരിയാണ്/ശരിയല്ല എന്ന് വലതുവശത്തെ കോളത്തിൽ ✓ അടയാളമിട്ട് രേഖപ്പെടുത്തുക.

- എപ്പോഴും ശരിയാണ്
- ചിലപ്പോൾ ശരിയാണ്
- ശരിയോനോ, തെറ്റോനോ പറയാനാവില്ല
- ഒരിക്കലും ശരിയല്ല

എന്നിവയ്ക്കായുള്ള കോളങ്ങളിൽ ഉത്തരം അടയാളപ്പെടുത്തുക.  
(ഈ പ്രശ്നാവലിയിൽ നിങ്ങളുടെ പേരോ മേൽവിലാസമോ എഴുതേണ്ടതില്ല)

Statements പ്രസ്താവനകൾ		Always true എപ്പോഴും ശരിയാണ്	Sometimes true മിക്കപ്പോഴും ശരിയാണ്	Rarely true വല്ലപ്പോഴും ശരിയാണ്	Never true ഒരിക്കലും ശരിയല്ല
1	As per my experience it is better not to trust anybody ആരേയും വിശ്വസിക്കാതിരിക്കുകയാണ് നല്ലത് എന്നാണെന്റെ അനുഭവം.				
2.	I cannot but be in enmity with some people. ചിലരോട് ശത്രുതയിലാകാതിരിക്കാനാവില്ല				
3.	If I cannot agree I usually oppose യോജിക്കാനാവാത്തപ്പോൾ എതിർക്കുയാണ് എന്റെ പതിവ്				
4.	Any achievement is gained only through competition മത്സരംകൊണ്ടുമാത്രമേ എന്തെങ്കിലും നേടാനാകൂ				
5.	I cannot spare those who provoke me എന്നെ പ്രകോപിപ്പിക്കുന്നവരെ എനിക്കു വെറുതെ വിടാനാവില്ല.				

Statements പ്രസ്താവനകൾ		Always true എപ്പോഴും ശരിയാണ്	Sometimes true മിക്കപ്പോഴും ശരിയാണ്	Rarely true വല്ലപ്പോഴും ശരിയാണ്	Never true ഒരിക്കലും ശരിയല്ല
6.	I am friendly with all. എല്ലാവരോടും എനിക്കു സൗഹൃദമാണുള്ളത്				
7.	I like pet animals വളർത്തുമൃഗങ്ങളെ എനിക്ക് ഇഷ്ടമാണ്				
8.	Nobody is trustworthy these days ഇക്കാലത്ത് ആരും വിശ്വസ്തരല്ല				
9.	I cannot stand children being tortured കുട്ടികൾ പീഠിപ്പിക്കപ്പെടുന്നത് എനിക്കു സഹിക്കാനാവില്ല				
10.	I very much respect some people ചിലരോട് എനിക്ക് അതിയായ ആദരവുണ്ട്				
11.	I have the patience to face adverse situations. പ്രതിസന്ധിഘട്ടങ്ങളെ തരണം ചെയ്യാനുള്ള ക്ഷമാശീലം എനിക്കുണ്ട്				
12.	I cannot but argue whenever I hear falsehood ശരിയല്ലാത്തകാര്യം കേട്ടാൽ എനിക്കു തർക്കിക്കാതിരിക്കാനാവില്ല				
13.	I can love even those who are hostile towards me. എന്നോടു പകയുള്ളവരെപ്പോലും സ്നേഹിക്കാൻ എനിക്കു കഴിയും.				
14.	Some people irritate me. ചിലർ എന്നെ വെറുപ്പിക്കുന്നു				
15.	My style is to cooperate without much protest എതിർപ്പൊന്നുംകൂടാതെ സഹകരിച്ചുപോകുകയാണ് എന്റെ രീതി				
16.	I cannot see animals being teased മൃഗങ്ങളെ പീഡിപ്പിക്കുന്നത് കണ്ടുനിൽക്കാൻ എനിക്കാവില്ല				
17.	I wish I should not have enmity to anybody എനിക്കാരോടും ശത്രുതയുണ്ടാകരുതെന്നാണെന്റെ ആഗ്രഹം				
18.	I cannot but contempt certain people ചിലരെ പുച്ഛിക്കാതിരിക്കാനെന്നിക്കാവില്ല				

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20.	It is safer to be suspicious towards everybody എല്ലാവരെയും ഒരു സംശയത്തോടെ വീക്ഷിക്കുവാൻ സുരക്ഷിതം				
21.	It is better not to cooperate with social service activities സാമൂഹ്യസേവനപ്രവർത്തനങ്ങളോടൊന്നും സഹകരിക്കാതിരിക്കുവാനു നല്ലത്				
22.	I can forgive to any extent എത്ര വേണമെങ്കിലും ക്ഷമിക്കാൻ എനിക്കാകും.				
23.	I am impatient in adverse situations. പ്രതിസന്ധിഘട്ടങ്ങളിൽ ഞാൻ വളരെ അക്ഷമകാട്ടാറുണ്ട്.				
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25.	I do not feel pity for anybody എനിക്കാരോടും ദയ തോന്നാറില്ല				
26.	My experiences made me a pessimist എന്റെ അനുഭവങ്ങൾ എന്നെയൊരു അശുഭാപ്തിവിശ്വാസിയാക്കി.				
27.	I believe, the tendency to fight is good. ആക്രമണ സ്വഭാവം നല്ലതാണെന്നാണു ഞാൻ കരുതുന്നത്.				
28.	I wish I should love everybody without hating anybody ആരെയും വെറുക്കാതെ എല്ലാവരെയും സ്നേഹിക്കണമെന്നാണെന്റെ ആഗ്രഹം				
29.	I feel very much envious towards certain people വളരെയേറെ അസൂയ ചിലരോടൊക്കെ തോന്നാറുണ്ട്				

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31.	My anger towards some people will be for ever ചിലരോട് എനിക്കുള്ള ദേഷ്യം എക്കാലത്തും ഉണ്ടാകും				
32.	The behaviour of certain people brings in a lot of resentment in me ചിലരുടെ പെരുമാറ്റം എന്നിൽ വളരെ നീരസം ഉണ്ടാക്കാറുണ്ട്				
33.	If somebody hurts us, we should definitely retaliate നമ്മളെ ആരെങ്കിലും ഉപദ്രവിച്ചാൽ തീർച്ചയായും പകരംവീട്ടുകതന്നെ ചെയ്യണം				
34.	Sometimes I fail to control my short temper മുൻകോപം നിയന്ത്രിക്കാൻ ചിലപ്പോൾ ഞാൻ പരാജയപ്പെടുന്നു				
35.	I see only injustice every where എല്ലായിടത്തും അനീതി മാത്രമേ ഞാൻ കാണുന്നുള്ളൂ.				
36.	To be virtuous is more important than anything. നന്മയുള്ളവരായിരിക്കുക എന്നതാണ് മറ്റെന്തിനേക്കാളും പ്രധാനം.				

**PERSONAL DATA SHEET**

**DEPARTMENT OF PSYCHOLOGY  
UNIVERSITY OF CALICUT**

**Health Research Camp (Batch No. ....)**

Place : ..... Date : .....  
 Name : ..... Gender : .....  
 Age : ..... Education : .....  
 Occupation : ..... Religion/Caste : .....  
 Body weight : .....  
 Address : .....  
 .....  
 .....  
 Phone No. : .....

Clinical History : .....  
 .....  
 .....  
 .....

Treatments undertaken :

Symptoms	Medical intervention	Duration - Outcome
.....	.....	.....
.....	.....	.....
.....	.....	.....

Investigations :

	Tested on	Tested on	Tested on
Body weight			
B.P.			
Breath rate			
Pulse rate			

## HOLISTIC HEALTH CAMP

### NATURAL CURE METHODS FOR HEART AILMENTS

From 18.09.2002 5 p.m. to 24.9.2002 11 a.m.

SREE SANKARA JANMABHOOMI KSHETHRAM

SREE SRINGERI SANKARA MATAM KALADI ERNAKULAM 683574

HOLISTIC HEALTH EXPERTS FROM CALICUT UNIVERSITY  
LEADS THE CAMP PROCEDURES

1. The venue is at 1 Km from Kalady town and 10 Kms from Angamaly to Kalady (AFK) Railway Station and 22 Kms from Aluva Railway Station.
2. 50 patients shall be admitted in the camp who make an advance registration.
3. Nutrition (Panchabhoota), Yogasana, Meditation and Health Psychology principles will be the procedures in the camp.
4. The treatment is free however the boarding and lodging and clinical lab test expenses are to be met by each participant. Persons accompanying patients also should pay . The total expense in this regard may come upto Rs. 500/- per person.
5. Bring with you the drugs you take at present and diagnostic prescriptions.
6. Patients who are unable to afford the camping expenses shall be admitted freely if sponsorship of some voluntary organisations is available.
7. Stay in the camp will be in dormitory style and women and ailing patients shall be provided with separate accomodation.
8. There will be a Yogasana training at every morning and evening in which non campers also can participate.
9. In holistic health procedures there will not be any kind of torture to body or mind.
10. Simple living is the main aspect of the camp. Bring essential clothing, plate, tumbler, torch, sheet etc. Avoid foam bedding. No winter cloth is needed.
11. This is the 20<sup>th</sup> camp we have held and we have found that complete cure is sure for those who follow the procedures.
12. Dr. V. George Mathew (formerly in Kerala University) Dr. P.Raman (formerly in Calicut Medical College) Dr. V.M.D Namboodiri (MMM Hospital, Kolencherry) Sr. K. Basheer (DDE Attappadi) Sri. Vecra Manikantan (Brennan College, Tellichery) Mr. Benny Varghees, (Thanal, Kaladi.) Dr. Varghese paul (Prajoyothi Nikethan College, Pudukkad) Dr. Omana Sreekumar(Vimala College, Trichur) Dr. M.K. Mathew (K.E. College Kottayam) and Dr. John Baby (Calicut University) are expected handle sessions.
13. Those who wish to learn the holistic health procedures can participate on prior permission.

#### FOR REGISTRATION PLEASE CONTACT ANY OF THE FOLLOWING

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# YOGASANA CHART

A BASIC COURSE



1. ARDHA HALASANAM (1)



2. ARDHA HALASANAM (2)



3. POORNA HALASANAM



4. CHAKRASANAM



5. ARDHA SALABHASANAM



6. SALABHASANAM



7. BHUJANGASANAM



8. DHANURASANAM



9. SARVANGASANAM



10. MALSYASANAM



11. NOUKASANAM



12. VIPARITHAKARANI



13. BHADRASANAM



14. YOGAMUDRA (1)



15. YOGAMUDRA (2)



16. VAKRASANAM



17. ARDHA MALSENDRASANAM



18. PACHIMOTHANASANAM



19. VRIKSHASANAM



20. ARDHAKADI CHAKRASANAM



22. VAJRASANAM



23. PADMASANAM



21. SAVASANAM