CHAPTER VI
SUMMARY & CONCLUSIONS

In analysing the rise in coronary artery disease, epidemiologists have estimated that at least half of the variance in this disease remain unexplained, after accounting for the physiological risk factors. In recent years attention has been directed toward socio-economic and behavioural factors. The importance of emotional and behavioural factors has been suggested by a number of investigators, but inconsistency in the definition of heart disease has resulted in equivocal and sometimes contradictory findings. The purpose of the present study was to study the psycho-social profiles of the subjects at risk of developing or with manifest Ischaemic heart disease. The psycho-social profile has been based on five variables which are stress, self-esteem, locus of control (internal, external, others) extraversion and neuroticism. These variables were selected on the basis of previous studies which have thrown light on their positive correlation with each other.

In the Hiland (1989) study, the Myocardial Infarction patients scored significantly higher in anxiety/neuroticism than did a control group matched with socio-economic status. In general these patients tend to be relatively higher in socio-economic status which is inversely related to trait anxiety/neuroticism (Spielberger 1983).

In the Western Electric Company study in Chicago, Ostfeld et al (1964) found over a 4.5 year follow-up that men subsequently developing angina pectoris differed significantly from men subsequently developing Myocardial Infarction. Before disease developed, the former had a greater
tendency to complain about somatic symptoms of all sorts and to be worried about their health even in the absence of objective findings. Men subsequently developing Myocardial Infarction complained about their health no more than average citizens. In a study of 10,000 Israeli men, anxiety/neuroticism was also found to have a significant positive association with the incidence of angina pectoris (Medalies et al., 1973a).

Although the anxiety/neuroticism of the patients in Hiland study were not elevated as compared with the general population, these patients were higher in trait anxiety/neuroticism than would be expected on the basis of their socio-economic conditions. Byrne (1979) reported that when trait, anxiety/neuroticism was measured with Eysenck neuroticism scale for patients with documented Myocardial Infarction and for patients whom a Myocardial Infarction could not be confirmed the first group was higher in trait anxiety/neuroticism.

There are also many contradictory findings. High extraversion and neuroticism scores have been linked with complainer syndrome and it is not likely that these people subsequently have a heart attack. Floderus (1974) provided some evidence that angina, hypertension and tachycardia may be related to high neuroticism and introversion, while Myocardial Infarction and hyperlipidemia may be related to high neuroticism and extraversion. What is interesting is that in the studies of clinical populations suffering or not suffering from coronary heart disease, the expected relationship has been found in the sense that those who did not suffer from Ischaemic Heart Disease had the highest neuroticism scores. In our study we are observing that the Risk Factor cases have a higher score for
extraversion and neuroticism. The results in several studies have been remarkably consistent in demonstrating that people with angina pectoris but no angiographically documented coronary artery disease scored higher on state neuroticism/anxiety than did persons with both conditions (Elias Robkin, Blow, Rice & Edgecomb 1982; Greene (1988), Schocken, Greene, Worden, Harrison and Speilberger, (1987). Schocken et al (1987) and Greene (1988) have reported higher trait anxiety in younger males with chest pain, but no angiographic evidence of a prior infarction, than in patients with angina and coronary artery disease. Thus high trait anxiety/neuroticism was not associated with coronary artery disease but seems to be a risk factor for referral for angiography in younger males. This again may explain the high scores for neuroticism in Risk Factor group.

Unfortunately, studies of stress, neuroticism and coronary heart disease have by and large failed to recognise the total concept and nature of stress. They have focussed instead on data pertinent only to single stages of the sequence leading to the stress reaction. A major source of occupational stress related to the type of occupation engaged in. Some differences with (Russek 1960) and between (French & Caplan 1970) occupations are potentially important sources of stress. In addition occupational stress may result from the source of remuneration that is self paid versus salaried employment (Magnus, Matroos, Strackee 1983). The nature of work demand (Haynes, Feinleib, Levine, Scotch, Kannel 1978) the nature of work load (Magnus et al 1983) and the degree of satisfaction workers feel in their employment and situation (Saks & House 1971) may also contribute significantly to stress in the work place. Further, sources of
occupational stress relate to the personality of workers and the amount of social support workers receive (e.g., Haynes & Feinleib 1980) and the degree of personal control workers experience over the work demands that confront them (Karasek, Baker, Marker, Ahlbom & Theorell 1981).

Differences within particular occupational groups have been shown to link with the incidence of coronary heart disease. The exemplary work of Russek (1960) demonstrated that a group of general practitioners in the age group of 40-69 had a markedly higher prevalence of coronary heart disease than did a group of specialists working in the less stressful area of dermatology. Russek (1965) in a further study demonstrated that there was a trend towards higher prevalence of coronary heart disease among the more stressful specialties within the professions of medicine, law and dentistry. Friedmen and Hellerstein (1968) however failed to replicate this finding in a study investigating stress ratings and their relationship to coronary heart disease in a samples of individuals involved in a number of legal specialities. Working within the public versus the private sector for any occupational group may also affect the rates of coronary heart disease experienced. In a longitudinal study (Kornitzer, Kittel, Debacker, Dramlax 1981; Kornitzer, Thilly, Uan Roux, Balthazar 1985) involving samples of bank employees, working either in the public or private sector it was found that the incidence of coronary heart disease was greater in the samples of private banking employees. The explanation for the finding had to do with much greater pressure experienced by employees in private as individuals who are self employed have a higher incidence of coronary heart disease than do those with employee status. More specifically Magnus et al (1983)
concluded that self-employed people are at twice the risk for coronary heart disease than are people who are not self employed.

The lack of control that an individual feels at work and the excessive demands that individuals feel control them in the work place have both been found to be positively related to coronary heart disease. Alfredson, Karasek and Theorell (1982) assessed whether high work demands and low opportunities for control at work were risk factors for coronary heart disease. Employing a large representative sample of individuals engaged in a wide range of occupations in Sweden, it was found that the hectic nature of work coupled with a lack of control over work practices was significantly associated with the risk of myocardial infarction. Rotters scale (1966) to measure Locus of Control was subsequently redeveloped to measure control over personal difficulties (Craig, Franklin & Andrews 1984).

Patients with anxiety disorders, whatever their precise diagnosis tend to score as externals and have scores one standard deviation above the mean of the general population (Andrew et al in press 1989).

A number of methodological issues bear directly on the interpretation of much of the data and due regard to these poses crucial questions about the acceptability. In our study, we studied hundred myocardial infarction cases and hundred cases who had the risk factors. One half part of our study can also be called a prospective study as we have a sample of hundred risk factor cases. There were eight groups, four groups were over forty five years, and four groups were under forty five years. The
categories were 1 Business Myocardial Infarction cases 45+ (2) Business Myocardial Infarction cases 45- (3) Executive cases 45+ Myocardial Infarction (4) Executive cases Myocardial Infarction 45- (5) Business cases 45+ Risk Factors (6) Business cases 45- Risk Factors (7) Executive cases 45+ Risk Factors (8) Executive cases 45- Risk Factors. The variables studied were stress, self-esteem, Locus of Control - internal, external, others, neuroticism and extraversion. Analysis of variance, t-test and correlations were applied for statistical treatment. The overall results showed that the Risk Factor group had a higher score for extraversion and neuroticism. The correlations for the Myocardial Infarction group are positive between Locus of Control (external) and Locus of Control (others). The combined group revealed positive correlations between Locus of Control (internal) and extraversion, between Locus of Control (external) and Locus of Control (others) and between Locus of Control (others) and extraversion. The hypothesis of our research is the study of psycho-social correlates of prospective patients of Ischaemic heart disease and patients already having this disease. The two groups of subjects have a remarkable similarity. The three variables which emerge are neuroticism, extraversion and Locus of Control. The risk factor cases had a higher score for neuroticism and extraversion. Another very important consideration we must keep in mind is that since angina, hypertension and tachycardia are related to high neuroticism and introversion, myocardial infarction and hyperlipidemia are related to extraversion, it stands to proof that the risk factor group therefore would have high scores for both extraversion and neuroticism. Taking the locus of control as a relatively stable characteristic as an internal moderator to stress, our whole sample groups perception is influenced by the degree of perceived control over a given situation.
Therefore our group has either tried to externalise or internalise especially in a situation where the outcome may be negative therefore locus of control has emerged as a strong variable. Data from previous studies are proving that the complainer's syndrome - neuroticism - leads to attention for the prospective patient, and it is our hope that early identification of such cases would lead to the control of Ischaemic heart disease in our country.

Coronary heart disease has become the most important cardio-vascular cause of premature disability and mortality inspite of the substantial knowledge concerning its prevention and control that has accumulated over the past three decades. This disease may without warning result in sudden death, or it may manifest itself as an acute and often fatal attack of Myocardial Infarction, or as angina pectoris, congestive heart failure, or arrhythmias. It causes death or disibility in many who are still in the active years of life, and whose children are still young. Its personal and social costs are profound both for the individuals and families invovled and for the countries in which it is common (WHO Report 1982).

The emergence of mass coronary heart disease has accompanied the increase in affluence in industrialised societies; affluence itself is not to blame for cardio-vascular disease, but only certain specific components of the affluent life-style. Affluence generates powerful social forces which encourage the adoption of a life-style that includes these adverse elements (WHO report 1986). Decreases in Cardio-vascular mortality have not been accompanied by an increase in mortality from other disease. Furthermore these declines have been most evident among the affluent
and educated sections of society. In fact the countries in which the decline has occurred cardio-vascular diseases are now more common among people of low socio-economic status.

However in India, which is a developing country, the incidence of Ischaemic heart disease is on the upswing and men as young as thirty five from the upper socio-economic strata are being affected by it. Keeping in view the Indian condition it was planned to conduct a study of the social, psychological correlates of prospective patients and patients of Ischaemic Heart disease in different groups, i.e. ages 35-55 years.

Thus further wanted to know the psycho-social profiles of individuals who are at risk of developing or with manifest Ischaemic heart disease. Are they similar or are they dissimilar? Will the presence of such a profile help in the identification of subjects at risk? Thus for the purpose of the present study, the variables like stress, self-esteem, locus of control, extraversion and neuroticism were taken.

Two hundred subjects were taken from the Escorts Heart Institute and Research Centre Delhi for the study. There were two main groups between the ages of 35-55. One hundred subjects each suffering from Ischaemic heart disease and risk of developing Ischaemic heart disease served as sample. The data were collected over a period of two years. The subjects were from the upper income group. There were two categories - Business and Executive. In the executive category all the professional groups were clubbed together. Eight groups were made out of the sample of 200 subjects. These were (1) businessmen over 45 years
who had a Myocardial Infarction (2) Businessmen under 45 years who had a Myocardial Infarction (3) Executives over 45 years who had a Myocardial Infarction (4) Executives under 45 years who had a Myocardial Infarction (5) Businessmen over 45 years with Risk factors (6) Businessmen under 45 years with Risk factors (7) Executives over 45 years with Risk Factors and (8) Executives under 45 years with Risk Factors. They were given a set of questionnaires to fill on the hospital premise.

This set of four different scales/tests were used to measure different personality characteristics of the subjects. They were: 'How vulnerable are you to stress' test developed by Lyle H Miller and Alma Dell Smith (1985), the self-esteem inventory developed by Cooper Smith which was adapted for the study and 23 items were selected out of 58 items, the adapted Locus of Control Scale by JB Rotter, generalised expectancies for Internal versus external control of Reinforcement (1966), and Hindi version of H. Eysenck's Maudsley Personality inventory.

The obtained scores of this research were analysed with the help of different statistical techniques i.e. analysis of variance and t-tests in order to find the significance of difference between the groups. Besides these techniques, product moment coefficient of correlation was also applied to see the interrelationships among different variables under study.

The findings emerged from our study are that out of the five variables stress, self-esteem, locus of control, extraversion and neuroticism studied, three variables which are prominent are neuroticism, extraversion and locus of control.
Therefore it is imperative and vital for us to test more subjects for these variables in order to help in early identification of prospective cases and thus lead to the control of Ischaemic heart disease in India, and also strengthen our own data base.

Since the sample group selected was from an exclusive hospital and therefore, the subjects were well-placed in life and educated. In the group of Myocardial Infarction cases, according to the interview which the researcher had with the patient, the patient had been through a crisis. The crisis was either related to his job, business or family. In the Risk Factor cases, the neuroticism and the extraversion variables are highlighted. There is a difference in the profile of the Executive cases 45+ Myocardial Infarction and Executive cases 45- Myocardial Infarction group. These subjects have a higher level of stress, Locus of Control (external) and Locus of Control (others). However, the groups on the whole are not that different. Locus of Control variable - internal, external and others is emerging as a dominant factor. There is a positive correlation between Locus of Control and extraversion, and between the variables of Locus of Control. We can say that in order to identify a likely patient for Ischaemic heart disease, we should look for the variables neuroticism, extraversion and Locus of Control.
EPILOGUE

From the teachings of Swami Satyananda Saraswati

The Parable:

It is late at night in the monsoon season. The sky is dark and cloudy. In the gloom, a lone seeker is slowly walking along the road looking for a quiet place to sleep. His possessions consist only of a small bag, a blanket and a lantern; he is blissful and carefree.

Suddenly he hears a motor cycle behind him. The motorcyclist is travelling very fast along the dark road, but he has no light. The seeker knows that he would have an accident, so he immediately decides to give his lantern to the motorcyclist. He rotates the lantern to signal the motorcyclist to stop. However, the motorcyclist doesn't stop - he goes straight past and nearly kills the seeker. The seeker calls out: "Stop. I want to give you this lantern, otherwise you will injure yourself."

The driver shouts back: "What's the point, I haven't got any brakes either."

The Explanation:

This story is an analogy of the life of modern man. The dark road is the path of life, generally lived without joy or wisdom. The motor cycle represents the human body-mind. Some people live a life that is like the reckless and thoughtless motorcyclist driving along the road; racing on the path of the life without knowing where they are going.

The light of the lantern represents wisdom; the brake represents self-discipline. The motorcyclist had neither brake (self-discipline) nor light (wisdom). He was certain to meet with a serious accident. It is the same with any person who walks through life without wisdom and self-discipline - he will surely harm himself and others.