CHAPTER III
METHODOLOGY

The present research is an attempt to study the psycho-social profiles of the subjects at risk of developing or with manifest Ischaemic heart disease. The presence of such a profile may help in identification of subjects at risk. Thus, for the purpose of the present study, the variables such as stress, self esteem, locus of control, extraversion and neuroticism were taken.

Prior to this study, patients at the Escorts Heart Institute had been observed and it had been noted that the variables like stress and self esteem were present in the profile of the patients suffering from a myocardial infarction. However, these observations were based on self evaluation by both patients and investigator.

In the study five different variables were taken. They were stress, self-esteem, locus of control, neuroticism and extraversion were taken. There were eight groups in the study. A set of four questionnaires was administered to the subjects in each group. Four groups consisted of patients suffering from Ischaemic Heart Disease between the ages of 35-55 and four groups consisted of subjects at risk between the ages of 35-55.

The study may further reveal whether these characteristic variables under study are found in the persons with the disease or are different from those people who are at risk to develop this disease, or are they present in
both groups i.e. myocardial infarction cases and risk factor cases. Is there an intercorrelation between these variables? This is the first study of its kind where the upper income group has been taken as subjects. It is an extreme source of anxiety that in India, people as young as 35 are succumbing to IHD. In Europe and USA, this disease is becoming more a disease of the lower income group and of people aged 55 and above whereas in India, it is attacking the well-to-do in the age group between 35-55.

Sample

The study was carried out at the Escorts Heart Institute and Research Centre, Delhi. The EHIRC is the first cardiac hospital in the country devoted exclusively to cardiac problems. Two hundred male subjects each were interviewed and asked to fill the questionnaires. There were two main groups between the ages of 35-55, hundred subjects patients suffering from IHD (Myocardial Infarction) and hundred subjects who were at risk of developing IHD. The data were collected over a period of two years. The subjects were in the upper income groups, ie their salaries were eight thousand rupees and above. The category was - Business and Executive. In the executive group bankers, hoteliers, professors, lawyers, doctors, bureaucrats, engineers and executives were clubbed together. Out of the sample of 200 subjects, eight groups were made.
Group I

In this group there were 20 subjects who had a myocardial infarction. They were businessmen over 45 years of age.

Group II

In this group there were 17 subjects who had suffered a myocardial infarction. They were businessmen under 45 years of age.

Group III

In this group there were 35 subjects who had suffered a myocardial infarction and they were executives over 45 years of age.

Group IV

In this group there were 28 subjects who had suffered a myocardial infarction and they were executives under 45 years of age.

Group V

In this group there were 17 subjects who were at risk of IHD and they were over 45 and were businessmen.

Group VI

In this group there were 32 subjects who were at risk of IHD and they were businessmen under 45 years.
Group VII

In this group there were 23 subjects who were at risk of IHD and they were executives who were 45 years and above.

Group VIII

In this group there were 28 subjects who were at risk of IHD and they were executives who were under 45 years of age. All the subjects were highly qualified and educated people, and the tests were administered to them in the hospital premises.

DESIGN: Subjects were grouped as follows:

<table>
<thead>
<tr>
<th>BUSINESS GROUP</th>
<th>EXECUTIVE GROUP</th>
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<tbody>
<tr>
<td>P1</td>
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Key

P = Patient
P1 = Prospective Patient
P2 = Patient of Ischaemic Heart Disease
T = Table
T1 = Stress Table
T2 = Self Esteem Scale
T3 = Locus of Control Scale
T4 = Maudsley Personality Inventory

Tools used

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), Hindi
version of H. Eysenck's Maudsley Personality Inventory, the adapted Locus of Control Scale from J B Rotter, generalised expectancies for Internal versus external control of Reinforcement (1966) and the self-esteem inventory developed by Cooper Smith which was adapted for the study and 23 items were selected out of 58 items.

In order to measure stress the test 'How vulnerable are you to stress' developed by Psychologists Lyle H Miller and Alma Dell smith at Boston University Medical Centre (1985) was used. It is a self evaluating scale which is used primarily for subjects who are at risk or have a cardiac problem. There are 20 items in it and five alternative responses from 1 (almost always) to 5 (never) according to how much of the time each statement applies to one.

Following are the break-up of the items.

1. Sleep, diet, health, smoking, drinking beverages
   6 items
2. Relationships
   8 items
3. Time management
   2 items
4. Finances
   2 items
5. Beliefs
   2 items
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   Total
   20 items
The first set of items (6 in number) which deal with sleep, diet, health, smoking and drinking are related to life-style. The statements are written in such a manner that they get a personalised response from the subject. From these statements it is possible to get an idea of the subjects vulnerability to stress.

The second set of items (3 in number) deal with relationships.

The relationships are pertaining to family, friends and being able to discuss problems.

The third set deals with time management, ie work and social effectiveness.

The fourth set deals with finances, whether the finances are managed properly or not.

The fifth set deals with self i.e. being able to take time off for oneself and being able to speak about one's feelings openly. The last set deals with beliefs pertaining to religion.

The score is obtained by adding up the figures and subtracting 20 and number over 30 indicates a vulnerability to stress. The subject is seriously vulnerable if the score is between 50 and 75 and extremely vulnerable if it is over 75.
In order to measure self-esteem, the self-esteem inventory developed by Cooper Smith (1967) was adapted for the study and 23 items were selected from the 58 items scale. There are a number of problems in self-esteem research both methodological and theoretical. First of all if as we suspect the motive to be esteemed by our significant other is a major one for all human beings (Becker 1971) then there may be a tendency not only for major individuals to falsely aggrandise their levels of self esteem but also the measure of self-esteem to be unstable over times as individuals seek to measure new reference groups and new situations which give positive rather than negative feedback. Thomson (1974). There are various solutions to these problems, including the examination of more complex aspects like identity structure, which are more likely to reveal how an individual thinks about himself than are simpler measures of personal evaluation (Hunt & Hunt 1977, Weinreich 1979). In fact a particular measure of self-esteem has good over-time reliability and such a finding may be of particular significance. A further problem concerns the validity of self-esteem measurement. Many researchers (e.g. Rosenberg & Simmons 1973) cite the correlation of the test with other conventional measures such as those like anxiety as evidence of validity. But the question arises: since some self-esteem measures correlate so strongly with measures of anxiety then why not use the conventional measure of anxiety instead. A more satisfactory measure of validity is a behavioural one, a method employed by Coopersmith (1967) and to a lesser extent by Ziller (1972). Ultimately, however, tests of validity, self-esteem and self concept
measures have to be phenomenological; to be only true indicators of how a person thinks about himself must come from the individual concerned (Labenne and Greene, 1969)

The self-esteem inventory developed by Coopersmith (1967) is a 58 item scale.

The principal components analysis indicate two major factors in this scale, a general factor which is termed general self-esteem, and the other a sociability factor. Scores on these two scales which emerged in studies of British adolescents were found to correlate significantly with Eysenck's measures of neuroticism and extraversion respectively (Bagley & Evan Wong, 1975). In further work it was found that the Coopersmith scale either the full version or the 23 items general self-esteem version, had significant correlations in excess of 0.300 with the established Personality measures of Eysenck and Cattell; with the adjective checklist of self-characteristic (over 0.510); with various cognitive measures with alienation from school life; with various measures of authoritarianism; and with various measures of prejudiced attitudes. The average test-retest correlation of the short version of the Coopersmith scale was 0.681 over a 6-month period. This is slightly poorer than the correlations reported by Coopersmith (1967) but does nevertheless point to the fact that the scale is part of an enduring self-system, as Ziller (1976) implies.

Following are the break-up of items
1. Regarding self (personal) 12 items
2. Sensitivity 6 items
3. Feelings 5 items

Total 23 items

The first set of 12 items deals with the individuals feeling regarding himself. From these items one gets an idea of how he perceives himself. The second set of 6 items deal with sensitivity, regarding himself. Does he get hurt easily and similar statements. The third set of 5 items deals with his feelings and the statements give an understanding of how he reacts.

The scoring is 0 for yes, 1 for unsure, and 2 is no. A high score is indicative high self esteem.

The Locus of Control scale which has been used is an adaptation of JB Rotter's scale, "generalised expectancies for Internal versus External Control of Reinforcement." It is referred to an Levenson's Internal, powerful others and chance scale (1974). However, the items are mixed up. The Internal-External Locus of control is related to a number of constructs of behaviour involving attitudinal changes with references to values, sentiments, social rules and regulations etc. Hence keeping in view the complex nature of Locus of Control items related to need for achievement, striving for superiority, competence, personal causation have been selected. This self report measure for assessing locus of control (Internal,
Powerful others and chance) uses a scale, each which is comprised of 8 items in a Likert format (possible range on each scale = 0 to -48). The three scales were derived on an a priori basis from several items adapted from Rotters' I-E scale and a set of statements written specifically for the new scales. While previous studies have found slight to moderate correlations between Powerful others and chance scales (.23 to .59), the internal powerful others and chance orientations were the first three clusters to emerge from factor analysis on data from normal (Levenson 1974) and psychiatric samples (Levenson 1973a). These factors seem to be conceptually pure in that only items from the appropriate scale load on that one factor. The statements in this scale attempt to measure the degree to which a subject perceives the events in his own life as being a consequence of his own acts, under the control of powerful other, or determined by chance forces.

The three new scales differ from Rotter's I-E scale in four important ways. (a) Instead of a forced choice format a Likert type 6 point scale is used so that the three scales are statistically independent of one another. (b) The statements on the scales are worded in the first person (personal control) rather than mixing first-person with third person (system control) phrasing. This distinction was made based on the factor analysis of Gurin, Gurin Lao and Beattie (1969) and Mirels (1970). (c) The scales have a high degree of parallelism in content among each triad. (d) The scales are not correlated with the measure of social desirability. The scale is presented to the subject as a unified attitude scale of 24 items.
The Internal Scale has 8 items which deal with the individual's belief that he is responsible for the outcome of events and this outcome is the result of his ability and effort. The external or powerful others scale has 8 items which deal with the individual's belief that rewards, or outcomes are not controlled by him but by 'Powerful Other' people.

The Others or chance scale has eight items which deal with the intervention of fate, luck or chance in the outcome of events.

Reliability of Scale

Test-retest reliability was calculated on male and female sample of 200 each, with an interval of 2 months. The reliability coefficient was found to be .78 for undergraduate and .82 for postgraduate students (N=100 each). For determination of reliability of entire sample, the test-retest reliability coefficient was calculated by Spearman - Brown prophecy formula which worked out to be .80.

Validity of the Scale

The validity of the scale was determined by the administration of present English version of the scale and Rotter's I-E scale to a group of 100 postgraduate students within an interval of 2 days. The validity coefficient was found to be .77.
The Maudsley Personality Inventory to measure extraversion and neuroticism has been used. It is the result of many years of developmental work. It was designed to give a rough and ready measure of two important personality dimensions: neuroticism or emotionality and extraversion. Each of these two traits is measured by means of 24 questions, carefully selected after lengthy item analysis and factor analysis. The two dimensions are conceived of as being quite independent; thus all the theoretically possible combination of scores may in fact be observed. The Maudsley personality Inventory has been administered to a large number of subjects both normal and neurotic. The original sample of 200 men and 200 women on whom item analysis and factor analysis were carried out has since been supplemented by groups of students, industrial apprentices, nurses, and a quota sample of the whole population, also available are data on various neurotic groups on prisoners and on sufferers from psychosomatic disorders.

Reliability of the Scales

Both split-half and Kuder - Richardson reliability coefficients have been calculated on different sample. For the Neuroticism scale, these values nearly all lie between .85 and .90; for the Extraversion scale they lie between .75 and .85 with the majority above .80. Retest reliabilities are available only on about 100 cases; they are .83 and .81 respectively. As
regards the short scale, split half reliabilities, on a quota sample of 2000 men and women were .80 and .72.

Correlation between Neuroticism and Extraversion: Theoretically the two dimensions are independent and consequently zero correlations would be expected between them. On some 20 different normal samples in both England and America, the actual correlation has been in the neighbourhood of - .15; occasionally some samples give positive correlations, and others give higher negative correlations. There appears to be no doubt that while the scales are almost entirely independent, yet there is a very slight negative correlation in most samples.

The Hindi version of H.J. Eysenck's MPI has been used. The instructions are printed on the scale. There are 48 items in the scale, and the response is Yes, No or? There is a scoring key which as to be used and then the scores are totalled. The MPI has been used as a research instrument here.

Scoring

The subjects were given a set of 4 questionnaires to fill in the Escorts Heart Institute. They were not allowed to take the questionnaires home and were asked to spend not more than half an hour on the procedure. This took two years to collect data as there were 200 subjects from different age groups and similar socio-economic background.
Tests/Questionnaires/scales were also administered to the patients, while they were admitted in the hospital and many completed in the out patients department. They were told that a psycho-social profile was to be developed.

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