CHAPTER - III

Methodology
Before actually undertaking the research it is important that the researcher examine his or her research problem and aims and objectives thoroughly so that it can be appropriately planned as to how these objectives can best be achieved. In the present research the main thrust was to explore the role of stress and anger direction in patients suffering from Coronary heart disease (CHD), hypertension (HT) and both CHD and HT. Therefore, it was necessary to study stress and anger in the following four groups:

1. Those suffering from coronary heart disease (CHD).

2. Those suffering from hypertension (HT).

3. Those suffering from both CHD and HT.

4. Those who are suffering from neither of the two (disease free group).

Group four would serve as the control group and through the study of stress and anger in this group, it would be possible to come to a realistic understanding of these variables in the three disease groups.

Details of tools used to study stress and anger, method employed to draw out the sample, statistical analysis undertaken are all being presented in this chapter.

**LIFE EXPERIENCE SURVEY:**

In the present investigation stress was measured through ‘Life Experience Survey Scale’ (LES), an instrument developed by Sarason, Johnson and Siegel (1978). The LES is a 57 item self-reporting measure that allows respondents to indicate events that they have experienced during the past year. The scale has two portions: Section 1, designed for all respondents, which contains a list of 47 specific events plus three blank spaces in which subjects can indicate other events that they may have experienced. The events listed in Section 1 refer to changes that are common to individuals in a wide variety of situations. The 10-events listed in Section
Section 2 deals specifically with changes experienced in the academic environment. Section 1 is appropriate for use with subjects drawn from general population, whereas both sections are relevant for the student population. In this research, Section 1 only was used as the sample consisted of patients which were drawn from the general population.

The LES represent life changes frequently experienced by individuals in the general population. Many of the items are based on existing life stress measures, particularly the SRE. Others have been included by the authors because they were judged to be events that occur frequently and that potentially might exert a significant impact on the lives of persons experiencing them. Thirty-four of the events listed in the LES are similar in content to those found in the SRE (Holmes and Rahe, 1967). All the events in LES can be categorised as follows:

- Events related to family: death, illness, losses, gains, and changes in closeness of the family members.
- Events related to marital and sexual relationships: Marriage, Divorce, Health and Working conditions of the spouse and changes in interpersonal relationship, sexual difficulties.
- Events related to finance, losses, gains, borrowing and investing in recreational activities.
- Events related to friend: Death or illness of a friend, breaking up and reconciliation with friend.
- Events related to person himself: Major personal illness, change in eating, sleeping, social and recreational activities, working conditions and living conditions.

Lastly, events related to the academic life—beginning a new school experience, failing an exam, dropping a course, being dismissed from dormitory or other residence, financial problems concerning school etc.
This, however, is part of Section 2, which we did not need to administer.

The format of the LES calls for subjects to rate separately the desirability and impact of events that they have experienced. They are asked to indicate those events experienced during the past year as well as: (a) whether they viewed the event as being positive or negative, and (b) the perceived impact of the particular event on their life at the time of occurrence. Rating is done on a 7-point scale ranging from extremely negative (-3) to extremely positive (+3). Summing the impact ratings of those events designated as positive by the subject provides a 'positive change score'. A 'negative change score' is derived by summing the impact ratings of those events experienced as negative by the subject. By adding these values, a 'total change score' can be obtained, representing the total amount of rated change (desirable and undesirable) experienced by subject during the past year.

The test-retest reliability studies of the LES have been conducted by the authors of the scale. It was found that test-retest correlation coefficient for positive change score were .19 and .53 (p < .001), for negative change score were .56 (p < .001), and .88 (P < .001), and for total score were .63 and .64 (p < .001).

Although LES scale has been developed in USA it covers areas which are common to individuals of all cultures. It was culturally evaluated and tested by Lone (1988) and found appropriate for use in Indian condition. Thus, the LES scale used by the investigator is an appropriate measure of stress.

**ANGER SCALE:**

In the present investigation, anger was measured through Anger Expression (Ax) Scale developed by Spielberger, Johnson, Jacobs, Krasner, Oesterle, and Worden (1985).

A working definition of anger expression was formulated as a first step in constructing the Ax scale by Spielberger and his associates (1985).
In formulating this definition, it was deemed essential to distinguish between anger as an emotional state (S-Anger), how often angry feelings were experienced (T-Anger), and the behaviors that people engage in when they feel angry or furious. On the basis of previous research, it was assumed that anger expression could be most meaningfully defined in terms of a single bipolar dimension, for which the behaviors ranged from strong inhibition or suppression of angry feelings to the extreme expression of anger toward other persons or the environment.

Another important procedure factor that influenced the procedures used in developing the Anger Expression (Ax) scale was to try to assess individual differences in anger expression as a personality trait, rather than the intensity of the expression of anger at a particular moment in time.

Although Spielberger and associates (1985) originally intended to develop a unidimensional, bipolar measure of anger expression, the results of the statistical analyses suggested that the Ax items were tapping two relatively independent underlying dimensions. Thus, rather than assessing a single, continuous bipolar anger-in, anger-out scale, the Ax items seemed to define two relatively independent anger-in and anger-out dimensions.

In this scale, three dimensions of anger are measured, namely anger-in, anger-out and anger-control.

Anger-in refers to how often angry feelings are experienced but not expressed. Whereas anger-out refers to the extent that an individual engages in aggressive behaviors when motivated by angry feelings. And anger-control may be defined as a tendency not to become angry.

The anger expression (Ax) scale comprised 20 items and yields four different scores. The Anger Expression (Ax-Ex) Score, which is based on all 20 items, provides a general index of how often anger is aroused and expressed or suppressed. The three Ax sub-scales assess individual differences in the tendency to: (1) express anger toward other people or objects in the environment (Ax-out); (2) experience but hold in (suppress)
angry feeling (Ax-In); and (3) control the experience and expression of anger (Ax-con). Anger-in and anger-out comprise 8 items each, and anger-control comprises 4 items.

There are four response categories for each item, viz. almost never, sometimes, often and almost always, with scores ranging between 1 to 4 respectively. In computing Ax/Ex scores (i.e. Anger total) a constant (C = 16) is added to eliminate negative scores. Ax/Ex scores can be calculated by using the following equation.

\[
Ax/Ex = \frac{1}{Ax/Out} + \frac{1}{Ax/In} - \frac{1}{Ax-Con} + 16
\]

Reliability of Ax scale has been established by the authors. The internal consistency of the 20-item Anger Expression (Ax/Ex) scale and the 8-item Anger-in and Anger-out sub-scales were evaluated by computing alpha coefficients and item-remainder correlations. The item-remainder correlations for the Ax-Ex scale were based on all 20 items comprising these sub-scales. The alphas ranged from .73 to .84 and were highest for the Ax/In sub-scale. Although somewhat lower, the alphas for the Ax/Out sub-scale were nevertheless reasonably satisfactory for a brief 8-item inventory.

In order to determine the validity of Anger Expression (Ax) scale, the authors administered a modified form of a Harburg and others (1973) questionnaire during the same testing sessions in which the high school students responded to the Ax scale. The original Harburg questionnaire was designed to measure “coping patterns and suppressed hostility” on the basis of subjects responses to a series of Vignettes relating to injustices perpetrated by authority figures such as police officers, a landlord, an angry boss.

The analysis of the Ax scores of students classified as “anger-in” and “anger-out” on the basis of the modified Harburg procedure provides evidence of the concurrent and construct validity of the Ax and its sub-scales.
SAMPLE:

The sample comprised 200 subjects falling in four categories - coronary heart disease patients, hypertension patients, patients suffering from both diseases, that is, CHD and HT and disease-free group. Each group consisted of 50 subjects. Purposive sampling technique was employed to draw out the sample. In the clinical setting it is extremely difficult to adhere to the procedure of strict random sampling. However, the investigator took all possible precaution to ensure that no bias was involved in the selection of sample. Three patient groups were obtained from Jawaharlal Nehru Medical College, Aligarh, while the disease free group was drawn out of the general population of Aligarh city, matched with the patient group in terms of all relevant details.

Age of the subjects ranged from 25 to 72 years, with average age of 47.90 years. Details of the age of each group is as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>Age range</th>
<th>Average age</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD</td>
<td>33 to 72 yrs.</td>
<td>49.72 yrs.</td>
</tr>
<tr>
<td>HT</td>
<td>25 to 69 yrs.</td>
<td>46.30 yrs.</td>
</tr>
<tr>
<td>Combined disease</td>
<td>35 to 67 yrs.</td>
<td>50.56 yrs.</td>
</tr>
<tr>
<td>Disease free</td>
<td>30 to 66 yrs.</td>
<td>49.16 yrs.</td>
</tr>
</tbody>
</table>

PROCEDURE:

In the present investigation anger and stress were measured. Anger was measured through Anger Expression (Ax) scale developed by Spielberger, and his associates (1985). And stress was measured through Life Experience Survey (LES) developed by Sarason, Johnson and Siegel (1978).
The scales were administered by the investigator to the subjects individually. Comparison on anger dimension and stress scores were made among four groups. Each group was thus compared at five levels - anger-total, anger-out, anger-in, anger-control and stress scores. Further, groups were enumerated and compared on positive life stress experiences.

**STATISTICAL TECHNIQUES:**

One way analysis of variance, t-test and significance of percentages were used to analyse the results.