CHAPTER - III

METHODOLOGY
CHAPTER - III

METHODOLOGY

In any scientific enquiry, solutions to research-worthy problems are sought through verification of the problem related research-worthy hypothesis with the help of sound sequential methodological steps. Hence an attempt has been made in this chapter to throw light upon the methodological steps taken in the present investigation for verification of the hypotheses stated in chapter – I. The heads and details of each methodological step are as under:

A. Universe and sample.
B. Tools.
C. Variables involved.
D. Procedure.
E. Limitations of the study.

(A) Universe and Sample:

The Universe, from which a sample of the present study was selected, comprised of working males and domestic females of Bansagar colony, Devlond, distt. Shahdol (M.P.). This huge colony was established for Bansagar Dam Project (1969), and now established as a small town of 10-15 thousand of population, containing 65% families of irrigation employees. Such type of universe was selected to lessen the variance due to educational, professional, and
Methodology

income status, which may influence the scores of anxiety test and locus of control scale. The sample was composed of 160 males and 160 females of age ranges 25-40 and 41-56 years having different blood groups. All males and females were educated and professional & educational status of all male subjects was around the same. They were all graduates and working there as Jr. engineers and Sr. engineers. All female subjects were educated but not working. A home-to-home survey was accomplished by a team of six trainee pathologists including researcher, in the period of 10 days. In these days, each data collector contacted 60 males and females, of age range between 25-56, every day. Information related to age, sex, educational status, professional status, and salary status were collected by asking the subjects themselves, and blood groups of all subjects were checked personally. During this interaction, it was informed to the subjects that some of them would again be contacted for further investigation i.e. measurement of anxiety, locus of control and blood pressure for a research, keeping in view that this information would prepare them to cooperate for all measurements. A list of 3600 persons was prepared in this way, according to their blood group, age and sex. These persons were further divided into 16 groups according to their age, sex and blood group respectively. For selecting the persons of each blood group in equal number, again, the persons of each gender and each age group in equal number, the random sampling technique was used by card system. The whole view of the selection process through random sampling technique from universe is depicted in the line diagram given below.
Limitations and Justification of the Sample:

The sample selected for present study as mentioned above, comprised of 320 subjects. The small size of sample might be taken in question of reliability and accuracy about the results.

As concerning the question of size of the sample in connection with reliability of results, it was clearly determined by previous researches that in spite
of a smaller sample, reliable result could be established with the appropriate use of statistical methods.

It could be argued that area of the sample was too small to make a generalization of the hypotheses and only working males while non-working females were selected as the sample. The education levels of all the female subjects were also not the same. This difference might influence the anxiety level and locus of control considerably.

As far as the question arises about the small area there was hardly any independent and dependent variable studied in the research, which was affected by the area. Even thought the distribution of the blood groups differ worldwide but it remains same countrywide. Hence, researcher used her native place with a viewpoint of convenience and cooperation. Again, to control the variance in socioeconomic status, family environment, marital adjustments, and other relevant variables, which might affect the anxiety level and locus of control of an individual, candidates of the same family were taken.

The question could also arise about the negligence of Rh⁻ factor in the sample. But since, there is no equal distribution of Rh⁺ and Rh⁻ people in general and only 7% Rh⁺ people exist in all over the world, it was too hard to collect the required number of subjects according to the requirement of research hypothesis. Therefore only Rh⁺ people were taken in consideration.
(B) **Tools:**

(a) **Sinha’s Comprehensive Anxiety Test (SCAT):**

The comprehensive test of anxiety, given by Prof. A.K.P. Sinha and L.N.K. Sinha was used to measure the anxiety of the subjects. The questionnaire consists of 90 questions in all and each one of them related to some particular variety of anxiety. Each question of the list was provided with two alternatives - Yes or No.

The SCAT was administrated individually on each of the subjects with blood group A, B O and AB. It was pointed out that each item had to be responded in either positive or negative terms i.e., Yes or No, and no statement should be left out. The questionnaires were gathered and then scored accurately by hand. For any response indicated as ‘Yes’ the subject was awarded the score of one and zero for ‘No’. The sum of the all the positive or ‘Yes’ responses were treated as the total anxiety score of the individual.

The individual may be classified into five categories on the basis of scores obtained on the inventory. An individual with an extremely high score or above 75th percentile may be regarded as hyper anxiety individual. His personality is complicated and he may be in need of counseling and psychotherapy. The extremely low scores below 25, percentile may indicate the person as under motivated and sluggish. The middle group of scores would be representing essentially normal individual.
Reliability of the Test:

The test and retest method (N=100) was employed to determine the temporal stability of the test. The Product moment correlation between the test and retest scores was 0.85. The internal consistency reliability was ascertained by adopting odd-even procedure (N=100). Using the Spearman Brown formula, the reliability co-efficient of the test was found to be 0.92. Both the value ensures a high reliability of the test.

Validity of the test:

The co-efficient of validity was determinate by computing the co-efficient of correlation between scores on comprehensive anxiety test and on Taylor’s manifest’s anxiety scale. It was 0.62, which is significant beyond 0.01 level of confidence.

(b). Rotter’s Locus of Control Scale (Hindi version):

The Hindi version of Rotter’s locus of control scale adapted by Dr. Anand Kumar and Dr. S. N. Shrivastava was used to measure the external / internal locus of control of the subjects. This is a forced-choice and self-administering test and consists of 29 pairs of statements, 23 of which are scored and 6 are filter items.

This test was administrated individually on each of the subject of the selected sample. In scoring, only external alternatives were enclosed. For each
Methodology

item (23 items), external alternatives were endorsed as score 1, thus the maximum possible score on this scale was 23 and minimum being 0.

The individuals were classified into two categories on the basis of scores obtained on the scale. The individuals, who scored high, assumed as the person of external locus of control. Just against it, the low scored persons were assumed as the person of internal locus of control.

**Reliability of the test:**

It is proved highly reliable scale by split half and test- retest methods as shown by the table below:

<table>
<thead>
<tr>
<th>Method</th>
<th>N</th>
<th>r</th>
<th>Index of reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split half</td>
<td>500</td>
<td>0.78</td>
<td>0.88</td>
</tr>
<tr>
<td>Test – retest</td>
<td>345</td>
<td>0.73</td>
<td>0.85</td>
</tr>
</tbody>
</table>

**Correlation between English and Hindi Versions:**

To ascertain the relationship between English and Hindi versions, 60 post-graduates (30 males & 30 females) were administrated with both versions. Obtained scores on both the scales were correlated and correlation was found to be
0.89, which was significant at or beyond 0.01 level of confidence. Hence, it is approved as an adequate paralleled from of its original (English) version.

**Validity of the Test:**

Rotter (1966) reported good discriminant validity for the scale indicated by low correlations with such variables as intelligence, social desirability and political affiliation. Similarly Hersch and Scheibe (1967) found non-significant correlations between I-E total scores and three different measures of intelligence. Trickland (1965), Tolor (1967) and Tolor and Jalowiec (1968) found non-significant correlations between Rotter’s Locus of Control Scale and Marlow-Crowne Social Desirability Scale.

(c). **Blood Group Sample:**

Blood groups were tested with help of six expert pathologists. In this way the suitable persons (males & females both) were selected in the sample of the study.

(d). **Sphygmomanometer (Blood Pressure Measuring Instrument):**

The blood pressure was measured through Sphygmomanometer, with the help of an expert pathologist thrice after the interval of one month each. For result analysis, mode of all the three readings of blood pressure of each subject of the sample was taken.
(C) **Variables Involved:**

The research design involved a number of independent and dependent variables in it. Blood group, sex and age were the independent variables while blood pressure, anxiety and locus of control were operated as the dependent variables here.

(D) **Procedure:**

The procedure was performed in three phases:

**I-Phase:**

(a) Testing of blood group and selection of sample through random sampling technique.

(b) Measurement of anxiety and locus of control.

(b) Measurement of blood pressure (three times, with the interval of one month)

**II Phase:**

Tabulation of data of anxiety, locus of control and blood pressure systematically, according to blood group, sex and age.

**III Phase:**

Statistical treatment and analysis of the data.
STATISTICAL TECHNIQUES AND DESIGN OF THE STUDY

I. A THREE WAY ANALYSIS OF VARIANCE:

In order to study the main and interactive effects and significant differences, a three-way Analysis of Variance (ANOVA) was used.

Table: A Three Way Analysis of Variance [A (4X2X2) Design]

<table>
<thead>
<tr>
<th>Anxiety / Locus of control / Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Range</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>

Independent Variables:

1. Blood group (A) - 4 (A, B, O, AB)
2. Sex (B) - 2 (Male, Female)
3. Age (C) - 2(25-40, 41-56)

Dependent Variables:

1. Anxiety
2. Locus of control
3. Blood pressure
Methodology

III. PEARSON'S PRODUCT MOMENT CORRELATION METHOD:

In order to study the patterns of relationship among different dependent variables, Pearson's product moment correlation method was used.

III. BISERIAL CORRELATION METHOD:

In order to study the patterns of relationship among different independent and dependent variables, Biserial Correlation method was used.

Table - Blood Pressure:

In order to find out the actual tendency of blood pressure (systolic & diastolic), measurement was done three times with the interval of one month. Mode of these three readings was considered as final Reading.

<table>
<thead>
<tr>
<th>I month</th>
<th>II month</th>
<th>III month</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Final reading)</td>
</tr>
</tbody>
</table>


**Limitation of the Study**:

To make the prediction is a difficult task in social sciences, since construction of scientific tools, and to maintain the objectivity by the side of researchers as well as subjects is not an easy job here. To control the effect of desire, motivation, biases, hallo-effect and other general problems, an advance planning and careful implementation of the research design is used in present investigation. But some limitations were still remained here, which are briefly mentioned below:

1) The first limitation of the study was related to the two variables involved in this study, which are anxiety and locus of control. To choose the appropriate tools and their accurate measurement was very tough job to accomplish.

2) Sample was small and only Rh+ individuals were selected here to study.

3) To check the variation of socioeconomic status, family environment, marital adjustments, and other relevant variables, researcher collected the data by male and female persons of the same family. In this condition, all male and female candidates were educated and working but all female candidates were non-working, despite of being educated. Again, educational level of male and female subjects was nearly same for young adult group, but there was a gap in case of old adult group.
4) The researcher has taken only normal and high blood pressure in consideration, while the investigation of low blood pressure might also be interesting and useful.

5) Researcher has taken only anxiety, locus of control and blood pressure for the study. Involvement of some others variables as depression, and some dimensions of personality as extraversion, sociability, enthusiasm might also produce some eye-opening findings in the study.