CHAPTER – III

RESEARCH METHODOLOGY
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Research is purposive scientific and planned deliberation. It is not a haphazard task. It requires proceeding in definite direction along with defined lines. A thing done in haphazard manner may be labeled anything but not research, while conducting the research work the researcher has to take many steps in a well organized manner. Systematic research in education will surely save time, energy and a lot of frustration.

Best and Kahn (1992), Stated “Research is the more often characterized by carefully designed procedures, always applying rigorous analysis.”

After the selection of definition and statement of the problem, the researcher has to decide about method, procedure and statistical techniques to be used for the investigation. Methodology makes the most important contribution in any study. In research, same method cannot be used for all the investigation which determines the adaptation of a particular method and procedure.

Research methodology involves the systematic procedure by which the researcher starts from initial identification of the problem to its final scientific and valid manner. It consists of procedure and techniques for conducting a study. But it is the nature of problem under investigation, which determines the particular method and procedure.

Survey research is a method of collecting responses from the representatives’ population through standardized tests, questionnaires, observations, interviews, rating scales etc. It goes beyond mere gathering and tabulation of data by involving measurement, classification and interpretation of data which in turn lead to the solution of significant educational problems.
3.1 VARIABLES

(i) Independent variables: Emotional Maturity and Family Environment

(ii) Dependent variable: Mental Health

(iii) Controlled –

   (a) Age
       - 12-18 years
   (b) Level of Education
       - Secondary level
   (c) Environment Level
       - Urban and Rural
   (d) Type of Board
       - Punjab School Education Board

3.2 RESEARCH METHOD

The study was conducted through descriptive survey method of research. The descriptive survey method has been the most widely used research method in education. The method requires sample and certain research tools for the conduct of the study. The description of tools and sampling is given hereunder:

3.3 RESEARCH TOOLS

For the collection of data one may use various research devices. For each and every type of research we need certain tools to gather or to explore new field, which act as means are called research tools. The success of any research endeavor is largely dependent upon the tools which are used for the data collection. The following tools were selected and used by the investigator in the study.

3.3.1 Mental Health Battery

Mental Health Battery prepared by Arun Kumar Singh and Alpna Sen Gupta. This battery consists of segment. These segments are following :-

1. Emotional Stability (ES) – It refers to experiencing subjective stable feelings which have positive or negative values for the individual. (It has 15 items)

2. Over-all Adjustment (OA) - It refers to individual’s achieving an overall harmonious balance between the demands of various aspects of environment, such as home, health social, emotional and school on the one hand and cognition on the other. (It has 40 items)

3. Autonomy (AY) – It refers to a stage of independence and self-determination in thinking. (It has 15 items)

4. Security-insecurity (SI) – It refers to a high (or low) sense of safety, confidence, freedom from fear, apprehension or anxiety particularly with respect to fulfilling the person’s present or future needs. (It has 15 items)

5. Self- Concept (SC) - It refers to the sum total of the person’s attitudes and knowledge towards himself and evaluation of his achievements. (It has 15 items)

6. Intelligence (IG) – It refers to general mental ability which helps the person in thinking rationally, and in behaving purposefully in his environment. (It has 15 items) Thus total items are 130.

3.3.1.1 Scoring

Scoring of MHB comprises two sections –A and B. Section A - in which item no. 1to IV are related to general information of socio-economic states, scoring is on 5 point scale i.e. 5, 4, 3, 2 and 1. Final result is total of all 4 score, judgment of SES on the basis if score is-

\[ 15 - 17 \text{ = Upper SES} \]
9 – 14 = Middle SES
8 or below = Low SES

Section B – Contains two point scale scoring i.e. yes having 1 mark and No. is of zero.

3.3.1.2 Reliability
Reliability is found by test – retest and even method. All correlation values were significant (P < .01).

3.3.1.3 Validity
Part I of MHB was validated against Emotional Stability Test developed by Sen Gupta & Singh (1985). Part II was validated against High School Adjustment Inventory (HAS) developed by Singh and Sen Gupta (1987). For part III and part V Construct validity was computed. Part IV was validated against Neuroticism Scale of MPI as adapted by Jalota & Kapoor (1975). Part VI was validated against Jalota Group General Mental Ability Test (1976).

3.3.1.4 Administration
Instructions were given to the examinee to fill up the questionnaire. Examinees were adolescents of class X standard. They were asked to read the all instructions carefully before starting the work. Though there is no fixed time to complete the work, but 25 to 30 minutes were given to complete the work.

3.3.2 Emotional Maturity Scale
Emotional Maturity Scale by Yashvir Singh & Mahesh Bharagava. EMS has a total of 48 items under the five categories given below:

1. Emotional Stability (ES) – Emotional Stability refers to the characteristics of a person that does not allow him to react excessively or given to swings in mood or marked changes in any emotive situation. The emotionally stable person is able to do what is required of him in any given situation. (It has 10 items)
2. Emotional Progression (EP) - Emotional progression is the characteristic of a person that refers to a feeling of adequate advancement and growing a vitality of emotions in relation to the environment to ensure a positive thinking imbued with righteousness and contentment. (It has 10 items)

3. Social Adjustment (SD) - Social Adjustment refers to a process of interaction between the needs of a person and demands of the social environment in any given situation, so that they can maintain and adapt a desired relationship with environment. (It has 10 items)

4. Personality Integration (PI) – Personality Integration is the process of firmly unifying the diverse elements of an individual’s motives and dynamic tendencies, resulting in harmonious coactions and de-escalation of the inner conflict in the undaunted expression of behavior. (It has 10 items)

5. Independence (I) – Independence is the capacity of a person’s attitudinal tendency to be self-reliant or of resistance to control by others, where he can take his decisions by his own judgment based on facts by utilizing his intellectual and creative potentialities. (It has 8 items)

Thus total items are 48

3.3.2.1 Scoring
EMS is a self-reporting Five Point Scale. Items of the scale are in question form demanding information for each in any of the five options mentioned below:

<table>
<thead>
<tr>
<th>V. Much</th>
<th>Much</th>
<th>Undecided</th>
<th>Probably</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

The items are so stated that if the answer is very much a score of 5 is given; for much 4; for undecided 3; and probably 2 and for negative answer of never a score of 1 is to be awarded.
Therefore, total score on the scale is indicative of emotional maturity whereas the greater the total score on the scale is expressed in terms of emotional immaturity.

3.3.2.2 Reliability
The reliability of the scale was determined by:

(i) Test – retest Method and (ii) Internal Consistency.

(i) Retest reliability – The scale was measured for its test – retest reliability by administering upon a group of 10\textsuperscript{th} class adolescents including male & female.

(ii) Internal Consistency – The internal consistency of the scale was checked by calculating the coefficient of correlations between total scores on each of the five areas.

3.3.2.3 Validity
The scale was validated against external criteria, i.e., the Gha (ฤ) area of the adjustment inventory for college students by Sinha and Singh. The inventory has ‘Gha’ area measuring emotional adjustment of college students. The number of items of this area is twenty-one. Product moment correlation obtained between total scores on all twenty-one ‘Gha’ items and total scores on EMS was .64 (N=46).

3.3.2.4 Administrating
The test can be administered on individual as well as group testing, there is no time limit for the test but usually it takes 20-25 minutes to complete the test. Only one answer is to be ticked for all the questions. All questions are to be answered.

3.3.3 Family Environment Scale
Family Environment Scale (FES) Employed by Harpreet Bhatia and N.K. Chadha (1993) is based on the family environment scale by Moos (1974). It was prepared and standardized by Harpreet Bhatia and N.K. Chadha in 1993. This scale is in English and includes 69 items. This scale contains three dimension and their sub dimensions described as:
Relationship Dimensions
I. Cohesion - Degree of commitment, help, and support family members provide for one another.
II. Expressiveness – Extent to which family members are encouraged to act openly and express their feelings and thoughts directly.
III. Conflict - Amount of openly expressed aggression and conflict among family members.
IV. Acceptance and Caring – Extent to which the members are unconditionally accepted and the degree to which caring is expressed in the family.

Personal Growth Dimensions
V. Independence – Extent to which family members are assertive and independently make their own decisions.
VI. Active- Recreational Orientation – Extent of participation in Social and recreational activities.

System Maintenance Dimensions
VII. Organization – Degree of importance of clear organization structure in planning family activities and responsibilities.
VIII. Control – Degree of limit setting within a family.

Table -3.2
Table showing items, their no. of dimensions of family environment scale

<table>
<thead>
<tr>
<th>S. No</th>
<th>Sub Scale</th>
<th>Positive Items</th>
<th>Negative items</th>
<th>Total Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cohesion</td>
<td>1,9,24,37,43,55,60,63,66,67</td>
<td>17, 31, 49</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>Expressiveness</td>
<td>10, 25,38,44,56,</td>
<td>2,18,32,50</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>Conflict</td>
<td>11,19,39,51,61,67</td>
<td>3,26,33,45,57,64</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Acceptance &amp; Caring</td>
<td>8, 16,36,42,48,54,59,62</td>
<td>23,30,65,68</td>
<td>12</td>
</tr>
</tbody>
</table>

Personal Growth Dimension
3.3.3.1 Scoring
Scoring of the positive items on the five point scale i.e. Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree is 5,4,3,2,1, for positive items and 1,2,3,4,5 for negative items respectively.

3.3.3.2 Reliability
Split-half reliability was found for the present scale. For this purpose the present scale split into two halves. The scores of dimensions were also split into halves. The scores for each of the half tests the reliability coefficient of the whole test was 0.95 estimated using the Spearman Brown prophecy formula.

3.3.3.3 Validity
Both face and contents validity was tested by giving the scale to eighteen experts to evaluate the tests items. Only those items with at least 75 percent agreement among the judges were retained.

For content validity the dimensions of the family environment were selected and clearly defined for the purpose of measuring the specific aspect of the environment. These definitions were also subjected to the judgment of the eight experts in the first step, and five experts in second step.

3.3.3.4 Administering
The test can be administered on individual as well as group testing, there is no time limit for the test but usually it takes 20-25 minutes to complete the test. Only one answer is to be ticked for all the questions. All questions are to be answered.
Students were urged to answer the questions truthfully. They were assured that record would be kept confidential. Necessary instructions were read out to students who had any difficulty in understanding and items the investigator readily explained of item without brazing their response.

After administrating the scale, the response sheet of each subject was sealed according to the direction given in the manual.

### 3.4 UNIVERSE OF THE STUDY AND SAMPLING

The universe of the study was government secondary schools of Bhatinda district. As per school information (DPI Schools), there are 96 Senior Secondary, 87 High Schools in Bhatinda district. Further the focus of the study was on secondary school adolescents of class 10th. Further, five schools were selected from urban area and five schools from rural area of Bhatinda district. All the students were conducted personally by the researcher through Headmaster / Principals of respective schools. After getting permission from Headmasters further arrangement were made for field work. A sample of 580 students in the equal number in terms of gender was obtained for the conduct of study. The list of schools from whole sample given in table –3.3.

#### Table -3.3

**School wise description of sample**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>School (urban)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shahid Sandeep Singh. Sen. Sec. School, Bhatinda</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>2</td>
<td>Govt. Sen. Sec. School, Rampura Phul</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>3</td>
<td>Govt. Sen. Sec. School, Goniana Mandi</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>Govt. Sen. Sec. School, Bhuchho Mandi</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>
### 3.5 SAMPLE OF THE STUDY

In research, it is impossible to study the whole population for which the problem is investigated. Hence every researcher has to resort to sampling. Sampling is basic of any scientific investigation. Different methods are employed for sampling like stratified, purposive incidental sampling and random sampling. In random sampling the selection of schools from the population is done in such manner that every school in population has an equal chance of being chosen and selection of any one is in no way tied to the selection of any other unit. The sample was selected randomly keeping in mind, both boys and girls.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>School (Rural)</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Govt. High School, Ballade Wala</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>2</td>
<td>Govt. Sec. School, Behman Dewana</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>3</td>
<td>Govt. Sec. School, Nathana</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

**Total No. of Students**  
580

### 3.6 DESIGN OF THE STUDY

According to Douglas & Good, “It is axiomatic that problems and method of research must be mutually adapted to each other.”

In the present study the investigator has used survey method to study the mental health of adolescents in relation to emotional maturity and family environment of the 10th class students in Bhatinda district. They have been further categorized on the basis of gender and locale.
3.7 STATISTICAL TECHNIQUES USED

At the end of research work, hypothesis is either accepted or rejected or partially accepted. This is possible only when we use appropriate statistics for the analysis and interpretation of data. In this project descriptive as well as influential statistics has been used. The computation work has been done with the help of computer. Different formulas were used to calculate mean, S.D., t-ratio, correlation. Frequency Distribution: Frequency distribution of scores of different...
dimensions of values and parental encouragement were prepared for the whole as shown in analysis chapter ahead.

Mean: the arithmetic means or simply mean is the best known measure of central tendency. It may be defined as sum total or separate scores or other measures divided by the number. It is called find out the nature of variable under study. Calculation of mean by direct method the direct method has been applied which is as under:

\[
\text{Mean} = \frac{\sum x}{N}
\]

where:
- \( \Sigma x \) = Sum of all scores in the series
- \( N \) = Number of scores in the series

Standard Deviation: The standard deviation is the most important and widely used measure of dispersion. It represents not merely the spread of dispersion, but the degree to which the scores are clustered around mean. S.D. is denoted by \( \sigma \) the formula for calculation of standard deviation is:

\[
\text{S.D.} = \sqrt{\frac{\sum fd^2 x}{N} - \left(\frac{\sum fd \times x}{N}\right)^2}
\]

where:
- \( \Sigma fd^2 x = \) multiply the step deviation by their respective frequencies and sum up the products.
- \( \Sigma fd^2 x = \) multiply squared step deviation by their respective frequencies and sum up the products.
- \( I = \) Common difference

S.E.D.- In order to study the significance of difference between two means the method of standard error of difference is employed. The standard error of difference was found by following formula.
The significance of difference between two means was judged through the computation of critical ratio \((t)\), which is found by dividing the actual difference of two means by standard error of difference.

\[
S.E_D = \sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}
\]

\[
t = \frac{|M_1 - M_2|}{S.E_D}
\]

\(M_1\) = Mean of 1\(^{st}\) group.
\(M_2\) = Mean of 2\(^{nd}\) group.
\(S.E_D\) = Standard error of difference.

In short the research design instrumentation methods and procedure were treated in this chapter. Having described the research design. The collection analyzable and interpretation to date will now be presented in the chapter that follows.

Correlation: - It is found out to see whether there is any relationship between the two variables and to see if the relationship is significant.

\[
r = \frac{\sum XY - \sum X \sum Y}{\sqrt{N \sum x^2 - (\sum X)^2} \sqrt{N \sum y^2 - (\sum Y)^2}}
\]

\(r\) = Coefficient of correlation

\(\sum XY\) = Sum of Products of scores of X and Y series

\(\sum X\) = Sum of all scores in X series

\(\sum Y\) = Sum of all scores in Y series

\(\sum X^2\) = Sum of squares of all scores in X series
\[ \sum Y^2 = \text{Sum of squares of all scores in Y series} \]

\[ N = \text{Number of scores in series.} \]

Level of significance (r): AF df =N-2=100-2 = 98,
The table value of r is 0.197 at .05 level of significance and the table value of r is .257 at .01 level of significance.

### 3.8 Procedure

The study was conducted on a sample of 580 government school students of Bhatinda districts. Survey method used for data collection. The purpose of the present study was to study the mental health of adolescents in relation to emotional maturity and family environment. All the three tools employed in the study were administrated on the subjects. The data for the present research were personally collected by the investigator from the students of government schools selected for the collection of data. The environment, testing situations and procedure for all the subjects were kept as uniform as possible to have correct required information. The filled-in questionnaires / answer sheets collected from each students grouped in their respective category for scoring. The scoring of answer sheets was done strictly according to the directions given in the respective test manuals.

Frequency distribution, mean, median, mode, standard deviation t-test and correlation of all the variables that is mental health, emotional maturity and family environment were calculated for analysis and interpretation of data.