CHAPTER : III

RESEARCH DESIGN AND METHODOLOGY
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Introduction

After the problem of research has been stated, the aims and objectives have been fixed and the main hypotheses for investigation have been framed. It is necessary to choose a design, which may be used to draw diagrams that outline the variables and their relation and juxtaposition. It includes the methods to be used together and analyse the data. In other words, it implies how the research objectives will be reached and how the problems encountered in the research will be tackled scientifically. The selection of an appropriate research design is very essential because it serves following basic purposes:

1. To provide answers to research questions with validity, objectivity, accuracy and economy.
2. To control the experimental, extraneous and error variances of the particular research problem under investigation.

Research designs are carefully worked out to yield dependable and valid answers to the research questions optimized by the hypotheses. Adequately planned and
executed design helps greatly in permitting to rely on both observations and inferences.

Research design is the plan, structure, and strategy of investigation conceived to obtain answers to research questions and to control variance. It enables the researcher to answer such questions as validity, objectivity, and consistency as accurately and economically as possible.

In any scientific investigation the methodology plays important role because the reliability and validity of the obtained results are contingent upon the accurate, precise and scientific methodology. Several standard methodological approaches and designs have been developed and discussed by authors (Ferguson, 1981) but the choice of appropriate approach depends upon the characteristics and availability of the sample, nature of measuring instruments and constraints on the manipulability of involved variables.

In the present investigation, the relationship of perceived crowding with adjustment and mental health studied.

A detailed survey of literature has pointed out that most of the studies effect of perceived crowding on adolescent's adjustment and mental health from rural or urban area of Varanasi city. The present investigator has gone through recent researches conducted on adolescent's crowding in different area's of Varanasi and has come to the condition that there are some faulty
adjustment which have vital role while crowding the adolescents. It is difficult to see which factor should be given more importance. It is understood that when we give importance to physical development it is necessary to ensure that mental development is also carrying the equal importance. Without mental development, physical development has no meaning; they are complemented to each other. Looking into all these scientifically based factors the objectives has been framed to cover up the present study.

Considering the importance of the subject a detailed survey was done on adolescents crowding in the Varanasi city with an aim to discuss the effect of perceived crowding on adolescents among different groups in Varanasi, thus to evolve a suitable strategy for community education. The interview schedule was designed and subsequently tested in a pilot-survey mode at initial phase of the investigation. Thereafter a comprehensive survey was conducted and data was collected through interviewing the sample of selected women through the schedule. Obviously, the purposive sampling procedure was resorted to in the present study. The information was also obtained through census reports and libraries at different places.

Objectives:

In view of a very dominating influence of caste system in rural societies and urban societies and importance of adolescents in the crowding the proposed
research to make a comparative study of rural and urban adolescents belonging to various caste groups with reference to their adjustment mental health. The objective of the present study may be enumerated as under:

1. To make a comparative study of the effect of crowding on adolescents adjustment and mental health.
2. To study the interrelationship between adjustment and mental health of the adolescents belonging to different caste and age groups.
3. To study the independent as well as interactional effect of the adolescents of various caste and age groups.

Hypothesis:

1. Perception of crowding would be higher among males as compared to females.
2. The high scores on the measure of the perception of crowding would be related to lower scores on measures of mental ill health.
3. The relationship between the perceived crowding and mental ill health would vary with sex.

Main Effect:

1. Crowding effect.
2. Sex - male and female.
3. Region - Rural and urban.
Period of survey
The survey was conducted from October 2004 to January 2005.

Study Area
Varanasi has been selected as the place for the present research work because in this district families belonging to different socio-economic group are residential. Moreover people belonging to all possible caste and religions resided in this district. The families live in a particular situation, which is common to all; hence, the impact of the surrounding on the respondents is visible. Only due to various occupation, religion, caste and income, the effect perceived of adolescents could be meaningfully observed. Age group of the adolescents was between the age of 14 to 17 years. Only those families were selected in which adolescent of this age-group were available.

Nesting on the tract of land between Varuna and Assi rivers and situated on the west bank of “Mother of All Rivers” Ganga is Varanasi. It is one of the most sacred places for Hindus. Varanasi is the centre of Indian culture since the ancient time. Banaras Province merged with Indian Republic on 15th Oct. 1949. Varanasi is among the five biggest towns of Uttar Pradesh. The main language of the city is Hindi.

Varanasi has the distinction for the birth and spread of Buddhism, Sarnath is the place where Lord Buddha delivered his first lecture after his
enlightenment. Varanasi is famous for religion, philosophy, art & culture along with the art of Zardoji on silk garments. Varanasi is an important place for the upliftment of Indian culture & customs. Gautam Buddha, Shankaracharya, Dayanand Saraswati visited Banaras for their own enlightenment.

Varanasi is situated between 24056' latitude to 81014' longitude on the eastern side of newly created district Chandauli, on the west there is Bhadohi, formerly both Chandauli and Bhadohi were the parts of Varanasi district. On north-west there is Jaunpur, on northern-east there is Ghazipur and on the south of the city there is district Mirzapur. The total land area of Varanasi is 1550.3 Sq.Kms. As per Census of 2001, the total Population is 25.08 lakhs. The rural population is 14.50 lakhs. Urban Population is 10.58 lakhs, the number of males is 13.27 lakhs and the females are 11.81 lakhs. And the sex ratio is 1000 : 890. The density of population is 972 per sq. Kms.

Varanasi is divided into single tehsil and eight development blocks. They are Kashi Vidhyapeeth, Chiraigaon, Cholapur, Harahuan, Pindra, Baragaon, Sevapuri, Araziline. Varanasi is situated 80.71 meters above the sea level. The average rainfall is 1019 mm per annum. The temperature lies between 460 C (maximum), and 50 C (minimum). The total cultivated land is 129071 hectares. The major crops are wheat, rice, sugarcane and potato. The total irrigated land is 73609 hectares.
The rate of literacy is 69.38% among males, 35.35 among females, Varanasi has three universities viz. Banaras Hindu University, Mahtma Gandhi Kashi Vidyapeeth, Sampurananand Sanskrit University, and Central Institute of Tibetan Studies (a Deemed University), fourteen degree colleges, 112 intermediate colleges, 346 senior basic schools, 865 Junior basic schools. Varanasi has total 286 post offices 26 telegraph offices, 63 telephone exchanges and above 50 lakhs telephone connections.

Varanasi city has witnessed remarkable industrial development. During this period Varanasi has developed more than any neighboring district, It is very well connected with the rail and air routes, only the three cities of U.P. is on air-map, the capital city Lucknow, city of “Taj” Agra and Varanasi. The major industry in Varanasi is Diesel Locomotive Works (D.L.W.), which rolled out 161 Locomotives in the year 1998-99. D.L.W. has gained the ISO 9000-9002 certificates. D.L.W.is exporting diesel enignes to Tanjania, Vietnam, Malasiya, Sri Lanka and Bangladesh. The second in line is “cinni”, the name synonymous with tullu pumps (water lifting pumps). The other important Industry is handloom and powerloom, which produce the world famous “Banarasi Saree”. Still Agriculture is the main source of livelihood and income.
Research Design:

Is there more than one No Select a basic design independent or a need to control for the effect of any external variable other than randomization?

Is interaction between the variables a concern?

Use a version of Factorial Design When 4 How many Independent and or more External variables are a concern?

If 3 If 2

No can all three be assigned the use a randomized same number of levels? Block Design yes

Use A Latin Square Design

Fig. 3.1: General Guide for selecting Research Design.

The research designs have ranged from the simple design to factorial Design. No one design is the best the most important criterion is that the design be appropriate for testing the particular hypothesis of the study. The merit of a sophisticated design is not complexity or simplicity but rather appropriateness. A design that will do the job it is supposed to do, is the right design. For this purpose the researcher chose to select Ex post Facto Design that is similar to experimentation, but with the critical difference that the treatment and control group are selected after the
introduction of the potential causal variable. In this style of some previously acting causal factors and attempt to trace back over an interval of time to some assumed causal complex of factors.

The designation Ex. Post Facto in Latin Stands for from after the fact' serves to indicate that the research in question is conducted after variations in the independent variable already been determined in the natural course of events. Kerlinger (1966) has defined Ex-post Facto research quite succinctly as "that research which the researcher starts with the observation of a variable or variables." Researcher than studies the independent variables in retrospect for the possible relations to and effect on, the dependent variable or variables.

Ex-post Facto research is often treated as an experimental design. However, it does not meet the key characteristics of experimental designs, the researcher neither manipulate the independent variable nor control variable where subjects are exposed to the independent variable. But Ex-Post Facto Studies will continue to enjoy wide spread utilization because they can provide evidence of causation in situations where experimentation is impractical or impossible.
In the context of the present investigation the problem is to determine the effect of prolonged deprivation on the adolescents' adjustment, intelligence, educational and vocational interests.

- The design of the present study is set under the following heads.

- Sample

- Basic Assumptions underlying the research

- Tools and techniques

- Procedure and Method of data collection

- Administration of the Tools

- Statistical Techniques Employed.

Sample -

The present study sample consisted of total 600 males and females in the age group of 14-17 years and studying in different institutions located in urban and rural areas separately. Generally, all these students belong to secondary stage of education and belong to different recognized streams of courses existed in their respectable institutions. All these institutions are affiliated under the U.P. Board of Education with some
under V.B.S. Purvanchal University (these institutions are run by private bodies and government directly).

Table 3.1: Distribution of Sample

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<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>Urban</td>
<td>150</td>
<td>Urban</td>
</tr>
<tr>
<td>Rural</td>
<td>150</td>
<td>150</td>
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</tbody>
</table>

For the selection of the students (Male and Females) the researcher further adopted the procedure of randomization and thus, only an equal number of 30 students have been selected in the final sample. Thus, the sample represents the wide range of urban and rural adolescents' population as it covered 10 urban boys and girl's institutions and 10 rural boys and girls institutions.

**Basic Assumptions**

In the present investigation the following assumptions have been followed and the entire body of conclusions will be laid down to the extent of the validity of these assumptions.

**Basic Assumptions Related to Tools**

It has been assumed that an individual while responding to the various situations in different test (Prolonged deprivation scale) is identifying him-self
with the situation in the test items and reacts accordingly.

Basic Assumptions Related to Population and Sample-

The basic assumptions with regard to population and sample are as follows:

1. The selected segments of population on which the present investigation is based was a part of the total population.

2. The age reported and recorded by the subjects was considered as their correct age.

3. The results obtained based on the small segment of population under study is applicable to the total population.

Basic Assumptions Related to the Cultural Factors -

In a vast country as India, inspite of its complex components of various languages, cultures, religions, societies and castes, it is assumed that the foresaid differences do not affect the criterion variable since the vast majority of the subjects are Indians hailing from a common cultural heritage.
Tools and Techniques -

Researcher requires many data gathering tools and techniques, which may vary in their complexity, design, administration and interpretation. Each tool is appropriate for the collection of certain type of evidence or information. The researcher has to select from the available tools, which will provide data for testing hypothesis. In selecting test for collecting data in research situation a researcher must evaluate their validity reliability and usability. These evaluative criteria are considered desirable for a good test.

The success of research investigation largely depends on the choice of appropriate tools, which is contingent upon certain factors. It is essential that the tool itself be well standardized, reliable and valid. It should also be suitable for the sample chosen for the study.

The present investigation is a kind of field study in which self-report measures where used to assess the perceived crowding and related variables. Self-report assessment is an extremely useful and flexible method with a rich past and promising future. This method has many desirable characteristics. In this method, the respondent reports about his own experiences. It is
assumed that the test respondent knows himself better than the observers who interpret him based on his manifest behaviour. The respondent is much closer to the phenomenon than any external observer can be. Derogatis (1982) suggested that self-report inventories tend to be cost efficient, brief, and highly cost-beneficial if they are well designed. Self-report measures require low levels of technology and professional training for administration and scoring. Therefore these measures can be used in many diversified situations. Despite several positive attributes, self-report measures have certain limitations also. Researchers should take care of the social desirability acquiescence and certain defensive maneuvers on the part of the respondent.

The following self-report measures were employed to assess the relationship of perceived crowding with adjustment and mental health of adolescents.

1. Effect of perceived crowding questionnaire
2. Adjustment Inventory Questionnaire
3. Mental health questionnaire.
1. Effect of Perceived Crowding Questionnaire (PHCQ)

Effect of perceive crowding questionnaire was constructed by the researcher under the supervision of Dr. Raja Rathor to measure the perception of crowding.

Item Analysis - The literature related to crowding was reviewed and it was felt that there is no suitable crowding measure to solve the purpose. In the present investigation, an attempt was made to prepare a comprehensive question to assess perceived crowding. The items related to density privacy, personal space interference, aggression, and withdrawal were prepared. The statements were given to the psychologists to rate whether they were related to the dimensions of crowding or not. They were also asked to evaluate the items in terms of clarity and suitability. Twenty items were rejected based on experts' ratings.

Scoring - There are five response categories for each item in PHCQ, each response has a weighted score ranging from 1 to 5 respectively. The item scores yield the total score. The high scores on PHCQ indicted low perception of crowding.
Sample - The PHCQ was administered to 300 boys 300 girls of 14 to 17 years belonging to middle class families of Varanasi for item analysis. After data collection the scoring was done.

2. Adjustment Inventory Questionnaire

The adjustment inventory has been devised to serve as a quick screening device for use with Hindi knowing school and colleges' students. It has been used successfully between ages 14 and above. The inventory in no way pretends to diagnose the type of psychoneurotic disorder, or to indicate the degree of adjustment in various areas of living, it merely attempts to segregate the poorly adjusted from those who are better adjusted and who may stand in need of psycho diagnostic study and counseling.

Statistics -

Sample - of the total population of 2775 in Lucknow about 50% was used for experimental testing. Stratified random sampling was employed. Then from these institutions, randomly selected subject took the test.

For drawing norms, selection was done at 10% level with a minimum of ten from each institution.
Reliability - Co-efficient of reliability was determined by the split half method and applying the spearman-Brown correction formula. This yielded a reliability coefficient of 0.80.

Validity - Initially only the highly valid items were selected from Mosier's study of Thurston's schedule still however, because of cultural difference item-analysis was done and validity coefficients were determined for each item by the bi-serial correlation method, the upper and dower quarters were determined from Q1 and Q3 which served as criterion groups.

Weighting - In view of the item-analysis finding it was considered desirable to weight the items. A weighting technique recommended by J.P. Guilford, which is based upon, weight on a nine-point the weights. The scores for items were the weights expressed an integer.

Testing - Normality of distribution was tested from random population by the Chi-square test. The value of the Chi-square at 9 d.f. was found to be 44.39 (P- .01).

Second Form - Scoring - There are 40 items in the second form of the inventory (Items 21 and 24 of the fist form were omitted for being rejected in item analysis).
Since weighted scoring is cumbersome and time consuming the subsequent study of the test sought to simplify the scoring system. To score a test-record award one mark for [ x ] 'No' and Zero for [ / ] 'Yes' response, except for items 19 and 40 where it should be scored in the reverse.

The sum of scores - The number of 'Yes' answers constitute the total score. It yields the adjustment score, as apposed to the maladjustment measure, obtained in the earlier version.

The higher the percentile better is the adjustment. Those scoring around 13 or less would profit from counseling.

Sampling - The sample comprised 405 students (205 boys and 200 girls). The first stratum consisted in selecting 20% colleges of both boys and girls and subsequently drawing subjects from classes XI and XII for the administration of the inventory. The sample constituted of 6% of the total population in Lucknow.

Reliability - The split-half reliability method using spearman Brown correction yielded reliability coefficient of 0.97.
Validity - Item analysis by bi-serial correlation technique using total test score as criterion measure revealed comparatively low validity of items 21 and 34. Consequently, these items were expunged when preparing the revised form of the inventory.

Testing - Normality of distribution of test scores for the two sexes was separately tested by applying the chi-square test. The chi-square values for boys were 9.08 at 5 d.f. and for girls 1.70 at 5 d.f.

3. Mental Health Questionnaire

(Kumar & Thakur)

The mental health questionnaires developed by A. Kumar & G.P. Thakur were employed to assess the extent of mental ill health of the subject. The questionnaire consists of 50 items of which some are to be rated on three-point scale and rest are to be response were to be obtained on a 5 point response format 'very true', 'true', 'doubtful' 'false' and 'completely false'. The positively worded items of the inventory were given scores of 5, 4, 3, 2 and 1 for the 'very true', 'true', 'doubtful', 'false' and 'completely false' responses respectively and the negatively worded items were scored in the reverse way. The maximum score,
therefore, one each scale was 50 and minimum score being 10 and overall inventory 250 and 50 respectively.

Reliability - Hindi version of MMHSI was administered on a randomly selected sample of 400 persons (200 males and 200 females). The age range of the subjects was from 18 years to 55 years with a mean age of 42.38 years. In order to obtain test re-test reliability. It was re-administered to the some groups after an interval of 3 weeks. However, only 286 subjects were available for the purpose.

It may be evident from table - 1 that MMHSI scales had high reliability co-efficient both by the split-half and test-retest methods.

<table>
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<th>Table - 1</th>
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<tr>
<td><strong>Reliability co-efficient for the MMHSI Scale</strong></td>
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<tr>
<td>Co-efficient</td>
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<td>Internal Consistency</td>
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<td>Test re-test</td>
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Reliability co-efficient of the MMHSI scales ranged from .74 to .88 with reference to internal consistency and .73 to .89 in test re-test stability.

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<td><strong>Reliability of MMHSI</strong></td>
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<tr>
<td>Method</td>
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<tr>
<td>Split-half</td>
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<td>Test re-test</td>
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It would be evident from Table - 2 that reliability of MMHSI is high both by split-half and test-retest methods.

**Inter-correlation of Scales (MMHSI)**

Inter correlations among the MMHSI scales were ascertained on a sample of 200 male college students. Findings are given in the following table-3.

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**Validity** - Hindi version of MMHSI was administered on sample of 130 males and females of psychiatric outpatient clinics and obtained mean scores were compared with a normal incidental sample of 130 male and female students of the same population. The ages of the subjects ranged from 25 years to 45 years with a mean age of 36.43 year. The subjects had education at least up to the undergraduate level.

In 1984, Thakur conducted a study of the mental health scores of a sample of industrial area (Bombay) and non-industrial area (Darbhanga). MMHSI was administered on these samples. It was found that
industrialization no doubt, provided help in general economic development but at the same time, it left bad effects on the mental health of people of the area.

Pandey (1984) conducted a study to explore differentiated personality correlates of mental health in Migraine patients. The sample consisted of 100 migraine patients and 100 normal graduate males of Varanasi district. These groups were matched on the variables of age (range 17 to 38 years) and socio-economic status. Hindi version of MMHSI was administered to these groups. It was found that migraine patients had poor mental health than the normal.

Gupta, Jain and Kumar (1985) conducted a study to ascertain variations among mental health of urban and rural women. The sample consisted of 100 urban and 100 rural women matched on the variables of age (range 25 to 40 years), education and socio-economic status. Hindi version of MMHSI was administered to them. It was found that urban women scored significantly higher on MMHSI than the rural women which indicates poor mental health for urban women.

Kumar, Pathak and Thakur (1985) explored variations in mental health of individual, team and non athletes. The sample consisted of 50 individual athletes,
50 team athletes and 50 non-athletes graduate males of different educational institutions of Varanasi district in India. These groups were matched on age (range 18 to 30 years with a mean age of 24.86 year) and socio-economic status. Only skilled competitive athletes were taken in this study as individual and team athletes. Hindi version of MMHSI was administered to them. Analysis yielded significantly poorer mental health for non-athletes than the team athletes and individual athletes.

MMHSI is a self-administering inventory and can be administered individually or in groups. The instructions given on the test form are sufficient to take care of the statements that are given. Individual and oral administration, however, are effective for non-readers, for visually impaired, and for other handicapped clients who cannot respond to stimulus items without help. They should have the items read aloud to them individually, and the examiner should record responses in the appropriate space on the answer sheet.

Written or oral administration of MMHSI generally takes 20 to 30 minutes to complete it.
However, no time limit for completion of the test is stipulated or fixed.

When subjects are working independently, they should be instructed to read and follow directions printed on the form. When the examiner is reading and recording the subject's responses, the examiner should read the directions to the examinee, and again-ask if there are any questions about what is to be done.

**Scoring and Interpretation**

Scores for MMHSI are derived from the responses on each item obtained on a five point response format 'very true', 'true', 'doubtful', 'false', and 'completely false'. The positively worded items of the inventory are given scores of 5, 4, 3, 2, and 1 for 'very true', 'true', 'doubtful', 'false' and 'completely false' responses. Negatively worded items are scored in the reverse manner.

The maximum possible score for MMHSI is 250 and minimum being 50. High score on MMHSI is indicative of poor mental health. In addition to the total score one may want to compute, separate scores for each of the scale of MMHSI. The maximum possible score, therefore, on each scale is 50 and minimum 10.
Analyses of each scale tends to provide additional information, which may not readily be revealed in inspection of the total score only.

Ego-centrism scale measures the extent to which the individual is concerned about his own needs, feelings, opinions and ideas. People scoring high on this scale would have difficulty in identifying or sympathizing with other people. High score on this scale is also indicative of withdrawal tendency, which results in difficulties in maintaining interpersonal relationships.

Alienation scale was developed to indicate the similarity of the respondent to hospitalized psychiatric cases. Persons scoring high on this scale would be suspicious, oversensitive, getting unusual sensations and sensory distortions.

Expression scale would measure the level of interaction of individuals on a social level. High score on this scale would indicate inconsistency of relationships in social situations, lack of social disclosure and feeling of insecurity.

Emotional un-stability scale will indicate whether the person would be unhappy, nervous, emotionally
labile, fearful, anxious and depressed. High score on this scale would indicate that the individual has serious personality problems and would need psychological and psychiatric assistance. Such people would have definite adjustment problems.

Social non-conformity scale would provide a clue to whether the individual was aligning with the existing social system or against it. A high score on this scale will indicate people to be narcissistic. Such people would like to cut them off from effective participation in ordinary social situation.

**Data Collection**

The collection of data from the selected institutions is the major part of the research work, it may be comparatively difficult to obtain data from such a large population therefore and as envisaged hereinto before sample of subjects for the study were collected in a strategic fashion through Systematic Randomization technique which could ensure representativeness of the population and thus, leading to the reliable conclusion.

In the preliminary phase of data collection, the researcher contacted personally the authorities of these
selected institutions to seek permission for administering various tests on them. The purpose of the administering of all these tools has been highlighted in order to justify the basic spirit of the study as well as of tools in compliance to them. In the meanwhile, the researcher becomes friendly with the students to overcome the communication problems.

In the second phase of data collection, the researcher carried the required number of the various tests booklets as well as their answer sheets. The institutions were contacted as per their given schedule of the classes. The researcher gave a short introduction of the students before beginning the given work. Thus, the researcher extended support and good confidence among them.

A brief description of the test was given to the subject. An attempt was made to establish report with them before administration of the test. Their doubts and difficulties were attended before each test was administered. Scoring for all questionnaires was done accordingly as instructed in their manuals. Effect of perceived crowding on adolescent's questionnaire was administered on the metal health and adjustment of adolescents selected for the sample.
Administration of the Tools

In order to create an encouraging environment with the students selected in the sample, the researcher made all favorable attempts i.e. greeting them warmly and talking with them in a friendly fashion. The test administration phase involves physical preparation and readiness such as seating plan (scheme) for students towards favourable eliciting of the responses on all the above-mentioned tools.

The obtained data were statistically analyzed in the terms of mean, standard deviation, t-ratio, coefficient of correlation etc. in order to test the various hypothesis formulated for the present study.

Statistical Techniques Employed

The researcher has employed both descriptive and inferential statistical techniques, which could suit to the collected data and operationally justify the hypotheses framed for the present study. A brief detail of all these statistical techniques employed and the data was, analysed through computer has been mentioned here.
Descriptive Statistics

Certain Descriptive statistics were computed in order to describe the nature and distribution of the scores obtained an the various tests, these descriptive statistical techniques are as following-

Mean - The mean values were computed as a measure of central tendency of the distribution of the scores on adolescent mental health, adjustment inventory of for crowding adolescents, group test of mental health and adjustment questionnaire.

The Standard Deviations - The standard deviations technique is employed to learn about the variations among the different types and forms of scores, the researcher got on all the above-mentioned tools in the present researcher. This also opens the avenues for advanced computation of data and help incorporating sophisticated statistical designs as followed here.

Pearson's Coefficient of Correlation - The values of coefficient of correlation were computed mainly between the areas of crowding adolescents and some other tests scores in order to learn about their affinities.

Inferential Statistics - The following inferential statistical techniques were employed in the present
research to test and judge the hypotheses of the present study as well as to draw precise inferences on the basis of the obtained results.

't' test - 't' values were computed to test the significance of differences between means among various groups of IV's and DV's in the present study.