

## *Methods*

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## **CHAPTER III**

### **METHODS**

The comprehensive review of literature on different perspectives of rural school students' with academic stress provided some insightful observations on the role of Integrated Intervention and its impact on reducing the level of academic stress among them. Further, it also brought to light many unresolved research problems on its mode of applications among the students. Based on the review of literature, several hypotheses were formulated and the research redesign was finalized to meet the key objectives of the study. The following sections deal with the key aspects of research design and methods of data collection.

Section I lists the specific hypotheses to be tested in the proposed study.

Section II presents the experimental research design outlining the nature of the interventions targeted at the rural school students and the type of variables observed before and after the intervention.

Section III covers the sample design.

Section IV introduces the appropriate research instruments used to assess the criterion variables before and after the intervention.

Section V presents the method of data collection.

Section VI discusses the types of statistical techniques adopted to test the hypotheses.

## **Research Questions**

However, the current study is unique to Indian scenario as it focuses on the psychological aspects of rural school students as well as their academic difficulties, and aims to induce a considerable level of change in them. It is of special interest to mention that only good and brilliant students are getting proper attention and praise all the time. Most of the students in the adolescence stage deal with academic stress. As a result of academic stress their academic performance may get affected and also they may get psychologically affected. Moreover they may be neglected. If such a segment of students are neglected continuously without paying adequate attention to their needs, they are likely to get into the wrong side of the day-to-day activities posing immense threat to the society. So it is of utmost need to take care of this vulnerable group during their studies, so that an adequate level of academic interest can be elicited among them to a considerable level. Considering the importance of the Integrated Intervention, the following pertinent questions were raised:

- To what extent the Integrated Intervention targeted at the rural school students facilitate to reduce the academic stress and increase academic achievement?
- How and in what ways does various components of Integrated Intervention such as (i) JPMR, (ii) Mindfulness Meditation, (iv) SQR3, affect the SC & ST students' academic stress?

## **Section I: Hypotheses**

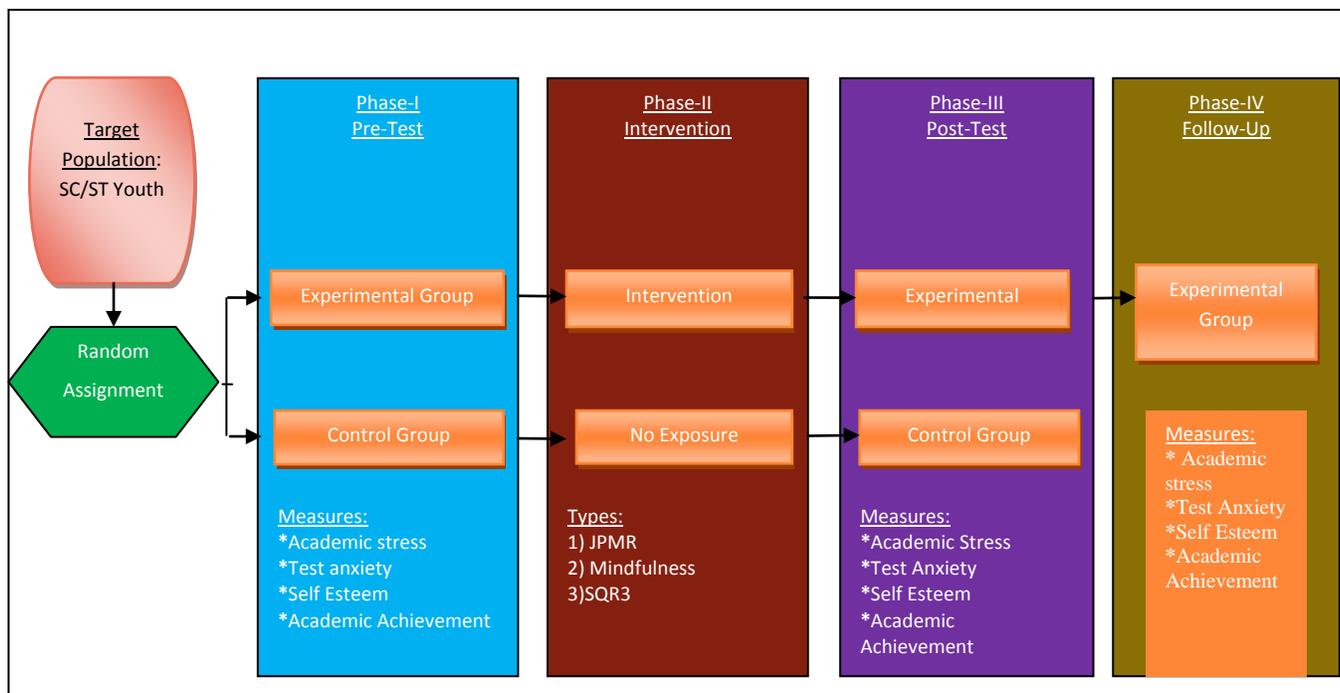
1. The Experimental group will have a positive effect on academic achievement after the intervention among SC/ST youth than the control group.

2. The Experimental group will have a negative effect on academic stress after the intervention among SC/ST youth than the control group.
3. The Experimental group will have a negative effect on test anxiety after the intervention among SC/ST youth than the control group.
4. The Experimental group will have a positive effect on self – esteem after the intervention among SC/ST youth than the control group.
5. Academic achievement will have a negative relationship with academic stress and test anxiety among SC/ST youth.
6. Academic achievement will have a positive relationship with self-esteem among SC/ST youth.
7. Academic stress will have a positive relationship with test anxiety among SC/ST youth.
8. Academic stress will have a negative relationship with self-esteem among SC/ST youth.
9. There will be negative relationship between test anxiety and self-esteem among SC/ST youth.
10. There will be significant gender difference in academic achievement, academic stress, test anxiety and self-esteem among SC/ST youth.
11. There will be significant difference in academic achievement, academic stress, test anxiety and self-esteem among different religious groups among SC/ST youth.
12. Family income relates positively with academic achievement, academic stress, test anxiety and self-esteem among SC/ST youth

## **Section II: Experimental Research Design**

*Pre-test Post-test Randomized Control Group and Experimental Group Research Design* will be followed to assess the effects of the Intervention for reducing academic stress, test anxiety, increasing self-esteem and academic achievement of SC and ST students. In order to control the influence of certain extraneous factors, it will be ensured that all the conditions are kept constant throughout the experiment for both the experimental group and control group, with the exception that only the experimental group is distinctively exposed to the treatment, whereas the control group is free from such exposure. Due care has been taken to ensure the validity of the research design, however, the maturation levels and other exposures available outside, are the major problems for internal validity.

Then, it was also planned to examine the effects of intervention on certain key psychological factors such as academic stress, test anxiety, self-esteem, and academic achievement. The general description and scoring of the subjective rating scales to measure academic stress, test anxiety, self-esteem, and academic achievement are discussed in the forthcoming pages. The general outline of *Pre-test Post-test Randomized Control Group and Experimental Group Research Design* pertaining to the above mentioned hypotheses of this study is depicted in Figure 2.



**Figure 2: Pre-test and Post-test Randomized Control Group and Experimental Group**

***Research Design with Integrated Intervention***

A Pre-test Post-test Randomized Control Group and Experimental Group Research Design were used to test whether the Integrated Intervention had the intended causal effect on SC/ST youth. There are three key components of a Pre-test Post-test Randomized Control Group Experimental Design: (1) A pre-test and a post-test (2) A treatment and a control group, and (3) Random assignment of study participants. All these three components were followed systematically to ensure that the Integrated intended to improve the SC/ST youth Academic Stress is done efficaciously. Their details are as follows:

- i. **Pre-test and Post-test:** A pre-test post-test design ensures that the relevant criterion factors such as academic stress and other key psychological factors must be obtained from the participants of the study before the intervention takes place

- (pre-test), and collecting the data using the same measures from the same participants once again after the intervention took place (post-test). This design is the best way to ensure that the intervention had a causal effect.
- ii. **Treatment group and Control group:** To get the true effects of the Integrated Intervention, it was decided to have both a treatment group and a control group. As the name suggests, the treatment group received the intervention. The control group, however, gets the regular classroom instruction without any intervention. By having both; a group that received the intervention and another group that did not, the intervention effects will reflect only in the difference between the pre-test and post-test results of the experimental group alone. It was also ensured that both the experimental group and the control group are of adequate size to be able to determine whether an effect took place or not. The experimental group consisted of 60 SC/ST youth and the control group also consisted of 60 SC/ST youth.
- iii. **Random Assignment of Participants:** As it was very critical to ensure that both the treatment group and the control group are homogenous in nature in all possible ways except the nature of exposure to intervention given, while no two groups will ever be exactly alike, the best way to make sure that they are as close as possible is having a random assignment of the study participants into the treatment group and control group. The sample of 120 screened SC/ST youth was randomly assigned to both Experimental Group and Control Group. By following this, it was ensured that any difference between the Experimental Group and Control Group is due to chance alone, and not by a selection bias.

### **Section III: Sampling Design**

#### **Sample Selection**

Targeting those students who have academic stress and poor scholastic activities with a purpose of turning them around as good academic achievers in their studies is a very challenging task for the teaching community as there is a considerable risk of dropouts among the SC/ST youth school students.

Unless special attention is being paid to take care of the academic stress, the rate of decline of academic interest among SC/ST youth school students will lead to drop-outs from the educational system. Hence, the present research is aiming at ways in which the academic stress among SC/ST youth school students can be reduced to maximize their academic performance. Among the various types of interventions, a set of comprehensive and well integrated methods encompassing Lecture, Jacobson's Progressive Muscle Relaxation, Mindfulness Meditation, and SQ3R may facilitate the SC/ST youth school students in improving their academic performance.

As it has been decided to conduct an intensive experimental research to assess the effectiveness of Integrated Intervention strategy to shrink the academic stress of rural school students, only a small group of around 120 school students studying in the 9th standard in a rural Government High School located in Sundhrapuram, Coimbatore District, Tamil Nadu were chosen for the present study. In order to ensure the homogeneity of the sample in terms of age, religion, about socio-economic status of a family such as income, education, occupation of family members, number of siblings, only the Students of Rural Government High School were selected.

### **Purposive Sampling Technique**

As the focus of the present study is on Rural School Students' Academic Stress levels, it was decided to follow the purposive sampling technique to pick only those students who have academic stress in the academic stress test. The screening of students who have academic stress was based on the administering Scale for Assessing Academic Stress (SAAS).

### **Inclusion Criteria**

- i. Only those students who were studying in 9th Standard.
- ii. Only those students who indicated high level of academic stress in the Academic Stress Test.
- iii. Only those students who were studying in Government School at rural area.
- iv. Only those students who were in the age group between 14 and 16 years.

### **Exclusion Criteria:**

- i) Those students who were below 14 years of age or above 16 years of age
- ii) Those students who had secured low stress scores in the academic stress test.
- iii) Those students who had been studying in urban schools.
- iv) Those students who had been studying in private or other public schools.

### **Operational Definitions**

The following operational definitions were formulated as to what each variable refers to and how it has been assessed in the present study. This was done to gain clarity

with reference to what and how the variables are measured and to make meaningful inferences from the results of the study.

**SC/ST youth:** The Scheduled Castes (SCs) and Scheduled Tribes (STs) are official designations given to various groups of historically disadvantaged people in India. The terms are recognized in the Constitution of India and the various groups are designated in one or other of the categories. During the period of British rule in the Indian subcontinent, they were known as the Depressed Classes. In modern literature, the Scheduled Castes are sometimes referred to as Dalits. (Kumar, 1992).

**Rural School Students:** Students those who are studying in the rural schools

**Academic Stress:** Academic stress defined academic stress as a demand related to academics that tax or exceed the available resources (internal or external) as cognitively appeared by the student involved. A mental distress with respect to some anticipated frustration associated with academic failure or even unawareness to the possibility of such failure.

**Test anxiety:** Test Anxiety consists of interacting phenomenological, physiological, and behavioral responses that occur prior to, during, and following a test. a condition that involves excessive worry in testing situations.

**Self-Esteem:** Self-esteem refers to a degree to which a person values himself or herself, the summation based on conscious self-evaluative thoughts and feelings or in short, as a global emotional placement of self. The sense of one's own value or worth as a person; self-esteem; self-respect.

**Academic Performance:** Academic achievement refers to a knowledge attained or skills developed in the school subjects, usually designed by test scores or by marks assigned by

teachers, or by both”. In the present study percentage of marks obtained by the students in their examination, was taken as their academic achievement.

#### **Section IV: Measures**

As noted earlier, the efficacy level of the Integrated Intervention to reduce the academic stress by way of improving their learning process is tested using a Pre-test Post-test Randomized Control Group Experimental Group Research Design. The following section discusses about the measurement instruments for each construct of the psychological variables such as academic stress, test anxiety, self -esteem, and academic achievement.

**(a) Scale for Assessing Academic Stress (SAAS):** The Scale for Assessing Academic Stress (SAAS) developed by Uday K. Sinha, Vibha Sharma and Mahendra K. Nepal (2001) was used to assess the level of academic stress of students. It is a 30 item instrument composed of 5 factors: cognitive indicators (7 items), affective indicators (6 items), physical indicators (5 items), social/interpersonal indicators (5 items), and motivational indicators (5 items). These five indicators/factors are five components of academic stress indicating expression of academic stress through different channels: cognitive, affective, physical, social/interpersonal and motivational levels. A 30-item self-report measure developed to assess all possible major indicators of academic stress is meant for different purposes such as identifying and estimating academic stress among students, planning and monitoring intervention strategy, developing research in the area of academic stress, evaluating the efficacy of counseling for coping with academic stress, and sensitizing students, parents, and teachers with academic stress. The respondent has to select either yes or no for each item of the scale.

It is a self-administered questionnaire. The students were instructed to read the questions carefully and answer them. They were asked to choose the alternative that best suited them. There was no time limit and they were asked not to make any omission. All 'yes' responses are given 2 points each and summed-up to get the total stress score while 1 point is assigned to all 'no' responses. Internal consistency of the scale was also adequate being in a range of 0.30 and 0.81 and the test-retest reliability of SAAS over the period of four weeks was 0.88 and split-half reliability was 0.75 indicating adequate reliability of the scale.

**(b) Test anxiety:** The Test Anxiety Inventory (TAI) (Spielberger, 1980), a self-report psychometric scale, was developed to measure individual differences in test anxiety. The total score of the Test Anxiety Inventory was used to measure test anxiety. The test is one page and contains twenty items. Based on a Likert Scale, the respondents are asked to report how frequently they experience specific symptoms of anxiety before, during and after examinations. In addition to measuring individual differences in anxiety proneness in test situations, the TAI subscales assess worry and emotionality as major components of test anxiety.

**Instruction:** A number of statements which people have used to describe how they feel about taking tests are shown below. Read each one, and then select an answer to indicate how you feel most of the time. Use "almost never", "sometimes", "often", or "almost always" to indicate various degrees of descriptiveness.

**(c) Self-Esteem:** The Rosenberg Self-Esteem Scale (Rosenberg, M. 1965), a 10-item scale that measures global self-worth by measuring both positive and negative feelings

about the self. The scale is believed to be uni-dimensional. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree.

**(d) Academic Performance:** The grades obtained by the students for subjects English, Science and Social Science was collected from the respective schools periodically in two examinations before and after the intervention. The quarterly examination scores were considered as their pre-test values and their final examination academic scores was taken as the post-test values.

### **Section V: Method of Data Collection**

The data collection process was carried out in three phases for both experimental and control group of rural school students in a systematic way.

**Phase I: Pre-test Data Collection:** During this phase, the academic stress and other psychological factors were collected from the SC/ST youth school students using the standardized questionnaires/inventories.

The Pre-test was carried out for two months. As it was intended to collect data on SC/ST youth school students' Academic Stress and Test Anxiety, Self Esteem, and Academic Achievement were given to the students with the request to complete and return the instruments to the investigator immediately. Due care was taken to maintain a good rapport with the student population and all the doubts raised by the students were clarified while filling up the questionnaires. They were informed that they would be approached once again, perhaps after three or four months to furnish similar type of responses soon after the completion of the intended Integrated Intervention. All the questionnaires were translated to Tamil Language and the quality of translation was cross-checked with the help of experts in Tamil language.

**Procedure:** The questionnaires were administered to the students personally, once the permission to approach the students was granted by the Headmaster/Headmistress of the concerned school. The students were included based on their willingness and voluntary participation in the study. Wherever possible, the investigator verbally outlined the purpose of the study highlighting what would be required from the participants. Further, it was ensured that their responses would be kept confidential and participation in the study would be voluntary. The students were clearly informed that participation would not lead to gaining any credit or additional points while appearing for the examination. All the clarifications and queries raised by the respondents were resolved.

**Pilot Study:** A pilot study was carried out with the sample of 30 higher secondary school students pursuing 9<sup>th</sup> standard, studying in Coimbatore City. The following are the objective of the Pilot study:

- To pre-test the research instruments of the study
- To establish the reliability and validity of the tools developed and the existing standardized questionnaires.
- To ensure whether tools are fulfilling the conceptual frameworks and the methods adopted are effective.
- To check whether the procedure is followed systematically as planned.

**Table: 1 the instrument of Reliability cared out and given below:**

S.No	Variables	No. of items	Cronbach alpha
1	Academic Stress	30	0.59
2	Test Anxiety	20	0.63
3	Self-Esteem	10	0.58

## **Phase II: Administration of the Integrated Intervention Program**

Once the segregation of students having academic stress were formed based on the pre-test data on Academic Stress through the Scale for Assessing Academic Stress (SAAS), the randomization process was followed to group the 120 segregated SC/ST youth school students into an experimental group (N = 60) and a control group (N = 60). During this second phase, the Integrated Intervention was offered exclusively to the Experimental Group for about seven weeks. Lecture, Jacobson's Progressive muscle relaxation, Mindfulness Meditation, and SQR3 given to the Experimental Group of SC/ST youth school students. The details of these interventions are given as below:

**I. Lecture:** The intervention was started by 5 minutes lecture of upgrading news about psychological distress and positive belief proverbs to motivate students. A simple and easy way to help the students zoom in on their interior obsession to break students free from the mental prisons they created and are holding them back from reaching their goals to start each day energized and excited about the possibilities ahead to help the students tap into their immense, natural talents.

**II. Jacobson's Progressive muscle relaxation (JPMR):** The next continues to Jacobson's Progressive Muscle Relaxation was administered to the school students to improve their concentration. Progressive muscle relaxation is an exercise that relaxes your mind and

body by progressively tensing and relaxation muscle groups throughout your entire body. They had to tense the muscle groups for 4 to 5 seconds and then relax. After the tensing and relaxing exercises the group was asked to maintain the relaxed state with their eyes closed for a period of 4 to 5 minutes.

The following instructions were given to the experimental group of students to progressively induce muscle relaxation and to maintain a calm and relaxed state, Begin by finding a comfortable position either sitting or lying down in a location where you will not be interrupted. Allow your attention to focus only on your body. If you begin to notice your mind wandering, bring it back to the muscle you are working on. You will tense each muscle for about 5 seconds. If you have any pain or discomfort at any of the targeted muscle groups feel free to omit that step.

“Clench your left hand and feel the tension. Relax and let the hand hang loosely.

Same for right hand. Bend your wrists and relax. Bend your elbow towards your

Shoulders and tense biceps muscle and relax. Bring your shoulders up toward

Your ears and relax. Let your shoulders drop down. Wrinkle your forehead, raise

Your eyebrows and relax. Close your eyes tightly and relax. Clench your jaws

Tightly and relax. Press your tongue against the roof of your mouth and relax.

Press your lips together tightly and relax. Turn your head so that your chin is over

Your right shoulder straighten and relax. Bend your head forward, pressing your

Chin against your chest, straighten and relax. Take a deep breath and hold it for 5

Seconds, slowly exhale and relax. Tighten your stomach muscles and relax. Arch

Your back and relax. Stretch your legs in front of you tighten your thigh muscles and relax. Push your heels down into the floor, tighten your hamstring muscles and relax. Point your toes toward your head and relax. Curl your toes toward the bottom of your feet and relax. Take in a deep breath count till 4 and exhale while

Counting up to 4 and relax, repeat the slow breathing with the count”.

In summary, it is expected that the overall Integrated Intervention will aim at eliciting more effort from the students and their mentors to gain required knowledge and skills to master their subjects.

**III. Mindfulness Meditation:** The next 15 minutes was mindfulness meditation which teaches stress management, which is the ability to attend to thoughts and emotions as they arise and to be fully conscious of the present moment experience. This technique makes the students to achieve a state of complete physical stillness, yet don't let them to fall asleep. The state of physical alertness which can induce the kind of mental clarity that seek and make the body is a tool for creating desired mental states. The important guidelines were given for a good seating posture. Chairs make it easier for most people to sit still for longer periods of time, students choose to sit in a chair, make sure both feet are firmly on the floor. The students were asked to pay attention to the alignment of their spine, and to sit up straight without using the back of the chair. As long as spine is straight, it doesn't matter where would sit. Another reason for this posture is to allow full expansion of breathing. The following instructions were given: Close your eyes and keep concentrate on your breathing, if any undesired upcoming thoughts and feelings appear they were instructed to accept whatever it may be without any judgements and comments and return to concentrate on breathing again. Meanwhile comments regarding the Power

of Awareness, Finding a Focus for Attention, Attending to the Physical Natures, Remembering about What they Ate, Expressing Fundamental Kindness, May All Beings be Well and Happy. Finally they were instructed to slowly open their eyes by counting from ten to one.

**IV. SQR3:** SQR3 (Survey, Question, Read, Recite, Review) is an effective study technique. This technique helps to improve the students' way of reading comprehension, possibility of increasing the pace of study time before the exams, improves understanding capacity and grade. First the students were arranged to sit in groups and asked to survey the book contents of the chapters, then to scan the whole lesson of the first chapter, then the diagrams, topic, subtopic, graphics, and activities to get an idea. Then, the students were instructed to make their own question based on headings, diagrams related to paragraphs, what is the paragraph about? what is the main idea? The following instructions were given: read, while reading don't skip any of the content, read paragraph wise accordingly related to diagrams, after reading, recite the information by their own words as notes, review the materials instinctively data's studied in a way that are get in to long term memory, it should be followed by sequence scheduled time. Accordingly the hard words to remember were marked and then divide the hard word in to different parts as possible and make those words to remember easily by using flash card technique and practice mnemonics.

### **Phase III: Post-test Data Collection**

Soon after the completion of the Integrated Intervention program given exclusively to the Experimental Group of Rural School Students for about 7 weeks period, the academic stress of both the Experimental Group and Control Group was collected

along with other psychological factors. For this purpose, once again, the concerned respondents were requested to furnish data on the same parameters such as Academic Stress, Text anxiety, Self Esteem, and Academic Achievement using the same questionnaire/inventory as in phase I.

## **Section VI: Statistical Techniques**

Suitable statistical analysis using SPSS package was used for analyzing the data. The methods adopted for the analysis are tests for correlation, ANOVA, and independent and paired t tests. Brief descriptions of these techniques are given below:

### **Correlation**

Correlation analysis is designed primarily to examine linear relationship between two variables. A correlation coefficient is a mathematical index that describes the direction and magnitude of a relationship (Kaplan & Saccuzo, 2011). Pearson product moment correlation method was used for the present study. This is the most important method for obtaining and interpreting the relationship between variables. Pearson correlation coefficients ( $r$ ) can take on values from -1.00 to +1.00. The sign of the value indicates whether there exists a positive correlation or negative correlation. A perfect correlation of -1 to +1 indicates that the value of one variable can be determined exactly by knowing the value on the other variable. A correlation of “0” indicates no relationship between the two variables (Pallant, 2001).

Garrett & Woodworth (1969), Cohen (1988) and some others were suggesting different interpretations however, the guidelines of Cohen (1988) were used for the present study, and this guideline is presented below:

r from .10 to .29 or r from -.10 to -.29 denotes small relationship

r from .30 to .49 or r from -.30 to -.49 denotes medium relationship

r from .50 to 1.00 or r from -.50 to -1.00 denotes large relationship.

The significance of “r” is strongly influenced by the size of the sample. In large sample (N=100+) very small correlations may be statistically significant at the traditional .05 level. However, in a small sample (e.g., N=30) even moderate correlations do not reach statistical significance. The statistical significance of coefficient of correlation has to be considered before the interpretation of correlation. The obtained “r” may be tested against the hypothesis that the population “r” is in fact zero. If the computed “r” is large enough to invalidate or cast serious doubt upon this null hypothesis we accept “r” as indicating the presence of at least some degree of correlation. To test this, the obtained “r” is compared with the limits established using the standard error of “r” (Garret, 1958). The standard error for the null hypothesis is  $1/\sqrt{N}$ . Therefore, a coefficient of correlation will be significant at 0.01 levels, if it exceeds  $1/\sqrt{N} < 2.58$ , and significant at 0.05 level, if it exceeds  $1/\sqrt{N} < 1.96$ .

Pearson product moment correlation is used in the current study to find out the inter-correlations between the variables such as academic achievement, academic stress, test anxiety and self-esteem. Pearson Product Moment correlation is the most commonly used correlation method. It measures the degree and direction of linear relationship between the variables.

## **Analysis of Variance (ANOVA)**

For getting a detailed picture of the differences, separate univariate tests are required for each variable. Analysis of variance is used to compare the mean scores of more than two groups on a single variable. ANOVA is short for Analysis Of Variance, the most common inferential statistical tool for analyzing the results of experiments when dependent variables are measured on interval or ratio scales (Goodwin, 2003). An F ratio is calculated which represents the variance between the groups, divided by the variance within groups. When F ratio obtained in the ANOVA is statistically significant it indicates that there are significant mean differences among the groups in the concerned variable (Garett, 1958).

As with all inferential procedures, ANOVA uses sample data as the basis of drawing general conclusions about populations. The groups used for ANOVA is Religion.

## **t – Test**

Another method used for the analysis of data is t test. The t tests are used to find out the variation of variables exists among the different means scores of the sample. In the present study paired t test is used to find out the effectiveness of Comprehensive Integrated Intervention Program on the variables such as academic achievement, academic stress, test anxiety and self-esteem. The independent t test was used to analyses the gender difference in study variables.