METHODOLOGY

4.1 Method adopted for the study
4.2 Variables of the study
4.3 Tools used
4.4 Population of the study
4.5 Samples Selected for the study
4.6 Data collection procedure
4.7 Scoring and consolidation of Data
4.8 Statistical techniques used
The term 'Methodology' means the logic of methods. The procedure adopted by the researcher for the realization of the objectives of the study is called methodology. The methodology adopted should describe the details such as tools and materials used in the study, development and validation of the source of data and procedure for the collection and analysis of data. The quality of a study depends upon the selection of suitable methods and tools for investigation. The methodology of the present study is described under the following heads.

4.1 Method adopted for the study
4.2 Variables of the study
4.3 Tools used
4.4 Population of the study
4.5 Sample selected
4.6 Data collection procedure
4.7 Scoring and consolidation of Data
4.8 Statistical techniques used

4.1 METHOD ADOPTED FOR THE STUDY

The purpose of the study is to develop a Package Based on Coping Strategies for reducing Academic Stress among Higher Secondary School Students. Hence the method adopted was Survey cum Experimental method. Survey method is used to find out the representative sample for Experimentation. In the Experimental method parallel groups were used for testing the effectiveness of the Package Based on Coping Strategies for the Higher Secondary School Students. The research design adopted for the
The purpose was Pre-Test, Post Test Non-equivalent group design (Best, 2005). The layout of the design is presented below.

In this design,

- O1 and O3 are Pre-Tests and O2 and O4 are the Post Tests.
- X is the Experimental group that is trained using Package Based on Coping Strategies.
- C is the Control group that is trained using the Present Stress Coping Approach.

The research design adopted for this Experimental study is presented in figure 4.1

**Figure 4.1**

The Research design

Standard XII

Experimental Group

- Pre Test
- Training based on Stress Coping Strategies
- Post Test Stress Coping Scale
- Delayed memory Stress Coping Scale

Control Group

- Pre Test
- Training based on present Stress Coping Approach
- Post Test Stress Coping Scale
- Delayed memory Stress Coping Scale
4.2 VARIABLES OF THE STUDY

In the present study, the dependent, independent and extraneous variables play a vital role. The variables used for the study are diagrammatically presented in figure 4.2.

Figure 4.2

Variables of the study
4.3 TOOLS USED FOR THE STUDY

The following tools and techniques were used for collecting data for the present study.

4.3.1 Questionnaire
4.3.2 Academic Stress Scale
4.3.3 Package based on Coping Strategies
4.3.4 Stress Coping Scale
4.3.5 Package appraisal Questionnaire for Experts
4.3.6 Package appraisal Questionnaire for Students
4.3.7 Delayed Memory Stress Coping Scale

4.3.1 Questionnaire

Questionnaire was used to collect data regarding the Facilities provided and the Activities conducted in the Higher Secondary Schools for reducing Academic Stress among students. It has two major parts, part A and part B. The details of the Questionnaire are presented below.

PART A – General information about the teacher and the school

PART B – Facilities given and Activities conducted in the school for reducing Academic Stress.

The Questionnaire was prepared after the review of related literature and a thorough analysis of the relevant books of stress. The investigator had consultation with educational psychologists and also had discussion with many counselors and higher secondary school teachers.

The questionnaire was finalized after considering the remarks of experts in the field of education and psychology. A copy of the questionnaire is given as Appendix I.
4.3.2 Academic Stress Scale (ASS)

The investigator constructed an Academic Stress Scale for Higher Secondary School Students for assessing the Academic Stress of Higher Secondary School Students. The scale was standardized by the investigator by following the accepted procedures. The details of the procedure involved in the development of the scale are given below.

4.3.2.1 Preparation of the Academic Stress Scale

The investigator reviewed books, periodicals and other descriptive materials to procure the requirements to construct the items of the Academic Stress Scale. Experts in the field of education, psychology, sociology, clinical psychology, psychiatry besides the supervising Teacher were consulted. With their suggestions, it was decided to follow the model of Richard Lazarus & Folkman (1984) including the categories of Academic Stress. The categories were School Environment, Teacher pupil relationship, examination pressure, peer relationship, parental expectations, experiencing failure, academic expectations, school facilities, friendship, and family.

The methodology adopted in the development and standardization of the tool was qualitative cum quantitative. As the initial step for the development of the scale, the investigator deeply analyzed the concept of Academic Stress. The investigator conducted a focus group discussion under the guidance of the supervising teacher and framed 125 statements with five options for each statement. The remarkable feature of the options of each statement was that it includes positive, negative and neutral polarity responses. The team in the focus group discussion includes Research Guides and Scholars from education and counseling. For all 125 statements, the focus group discussion team members made rank for each of these options in a five point scale as 5 for strongly agree, 4 for Agree, 3 for Undecided, 2 for
Disagree and 1 for Strongly Disagree. These 125 statements were exposed to validation with the help of experts from the fields of education, psychology, sociology, clinical psychology, psychiatry and from higher secondary school teachers.

4.3.2.2 Try out of the Draft Scale

The draft scale with 88 statements was given to the experts with an Academic Stress framework. They were requested to validate the draft test statements and their respective five options with their valuable remarks for each statement. The expert validation with their valuable remarks helped the investigator to filter even the minute defects that were not detected in the focus group discussion. Based on their suggestion and discussion with supervising teacher, the investigator selected 88 statements. The Academic Stress Scale Draft form with 88 items and response sheet is given in Appendix II & III.

After this Qualitative validation, most of the eminent experts especially those from the field of education and school administration suggested to administer the modified Academic Stress Scale to the Higher Secondary School students to find out the discriminating power as a quantitative approach. Hence the investigator administered the qualitatively validated Scale statements to a sample of 400 students from a population including boys and girls, coming from the rural and urban community of Kerala. From the northern region Kozhikode and Palakkad districts were taken. From the middle region Ernakulam and Kottayam and from the southern region Kollam and Triuvanathapuram districts were taken. Two schools were taken from each district and a total of 400 students were taken from these 12 schools of Kerala as a sample for the final quantitative standardization of the validated Academic Stress Scale.
The response sheets of 360 students were scored and were arranged in a descending order of the total score. The highest 27% and the lowest 27% of the response sheets were separated. These were criterion groups in terms of which evaluation of the individual statements were done. For evaluating the responses of the high and low groups to the individual statements, the ratio was found using the formula,

\[ t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}} \]

\( \bar{X}_1 \) = Arithmetic Mean of the given item for higher group

\( \bar{X}_2 \) = Arithmetic Mean of the given item for lower group

\( \sigma_1 \) = Standard Deviation of higher group

\( \sigma_2 \) = Standard Deviation of lower group

\( N_1 \) = Number of subjects in the higher group

\( N_2 \) = Number of subjects in the lower group

The statements for which t-value is greater than or equal to 1.75 was regarded as an item, which possess internal consistency and hence discriminating power. Thirty eight statements having t-value lower than 1.75 was rejected from the draft scale. Thus 50 statements with options were selected for final scale. The details of the item analysis are given in Appendix IV.

4.3.2.3 Instruction for Administration and Scoring of Academic Stress Scale

The standardized Academic Stress Scale was given to students along with the response sheet. For each questions there was five options and put a
tick mark (\(\checkmark\)) in the respective box for each question. As it is a scale designed for assessing the Academic Stress of students no strict time boundary was kept. Anyhow duration of 60 minutes is necessary for finishing the Academic Stress Scale smoothly. The details about the number of items retained under each component in the Academic Stress Scale is shown in Table 4.1

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Component</th>
<th>Serial No. of items</th>
<th>Total No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>School Environment</td>
<td>1,7,10,13,14</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Teacher Pupil relationship</td>
<td>18,20,22,23,53</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Examination Pressure</td>
<td>31,32,33,34,37</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Peer relationship</td>
<td>3,12,19,49,59</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Parental expectation</td>
<td>48,51,77,85,87</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Experiencing failure</td>
<td>6,8,39,54,57</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Academic expectations</td>
<td>5,40,41,44,56</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>School facilities</td>
<td>25,26,28,29,30</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Friendship</td>
<td>9,64,65,66,70</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>Family</td>
<td>11, 21,24,73,82</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

4.3.2.4 Scoring procedure

The Academic Stress Scale comprises of statement type items, the responses of which are to be marked on a five point scale. The responses and the scores assigned to each response are as follows.
Scoring key of Academic Stress Scale

<table>
<thead>
<tr>
<th>Response</th>
<th>Score</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Undecided</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

The maximum score that can be attained by an individual for Academic Stress Scale is 250 (50×5) and the minimum score is 50 (50×1).

4.3.2.5 Validity of the Academic Scale

The criterion validity of the scale was found out by correlating the present scale with an external criterion that is Academic Stress Scale (Pramod & Paulie, 2006). Both the scale was administered as the sample of 100 students and the correlation was found out as 0.78.

The content validity of the test was maintained by careful reference to the current literature as well as by consultation with experts.

Thus the scale as a whole is reasonably valid and reliable instrument for the purpose of the present investigation.

4.3.2.6 Reliability of the Academic Stress Scale

Reliability of test is its trustworthiness or its consistency. The split half reliability of the Academic Stress Scale was found. The test was split into two equal halves on the basis of odd numbered and even numbered items. The correlation coefficient between the scores of two halves for a sample of 100 students was found using Karl Pearson’s Product Moment formula. The half
scale reliability estimated was 0.67. The split half reliability of the whole test was found using Spearman Brown Prophecy formula. The reliability coefficient of the whole scale was calculated as 0.81.

A copy of the final Academic Stress Scale and the scoring key are given in Appendix V & VI respectively.

4.3 Package based on Coping Strategies

The major objective of the study was the development of the Package based on Coping Strategies for reducing Academic Stress among Higher Secondary School Students with a special focus on the coping model put forth by Lazarus and Folkman (1984). The investigator has decided to prepare a Package based on Coping Strategies because of the following reasons. First of all related literature has given significant evidence to the need of stress coping for the students, and secondly the problems created due to the high stress level and finally effects negative ways of stress coping lead higher secondary school students to depression forced the investigator to develop various strategies to train the students to cope up with the academic demands and lead a meaningful and successful life with enriched coping ability. The details regarding the preparation of coping with stress strategy are given under the following heads.

4.3.1 Design and features of Package based on Coping Strategies

Package based on Coping Strategies is developed for Higher Secondary School Students for reducing their Academic Stress and it is based on the theoretical constructs of coping put forward by Lazarus and Folkman (1984). This Package is aiming for the reduction of Academic Stress through the improvement of coping abilities by practicing various Stress Coping Strategies. How students perceive an event or situation determines if it is a stressor to them. In addition to their perception of events as stressors, the
actual coping method used will be important in determining the intensity, duration and possible harmful results of their stress. Coping is a response to stress- behavioral or psychological responses designed to somehow reduce the aversive qualities of stress. This coping response can be direct or indirect. The direct response involves problem solving activities to reduce stress. The indirect or palliative responses involve individual’s acceptance of the problem and their management of the stress responses which normally develop.

The Package is developed by the investigator under the instruction of research Guide after attending a lot of programs on how to manage stress. Before the final implementation of the Package among the experimental students, pilot study was conducted at different higher secondary schools of Kerala along with Package based on Coping Strategies. Modifications are made on the basis of the pilot study and the Package based on Coping Strategies is validated with a team of experts in this field. The list of experts involved in the validation of the Package is shown in Appendix VII.

Some of the features of the Package based on Coping Strategies were

- It covers training on nine categories of Stress Coping.
- Each phase is short enough to cover within the determined period of time.
- The instructional objectives and activities are properly sequenced.
- The language used is clear and simple for the followers.
- Students can check their stress level at the end of each session effectively.
- Conclusion, review and feedback are ensured.
- The initial and final assessment help to assess the effectiveness of the Package based on Coping Strategies.
4.3.2 Area selected

Before constructing the coping with stress strategy the investigator considered many of the stressors the student now faces. The investigator has done a thorough review of related literature and also consulted many experts in the field and had long discussion with educational psychologists, counselors, career guides and teachers. The following nine areas were selected finally for the preparation of coping strategy:-

1. **Physical coping strategies**: Physical coping strategies are aimed at directly altering one's physical responses before during or after stressors occur.

2. **Psychological coping strategies**: Psychological coping strategies replace catastrophic thinking with thoughts in which stressors are viewed as challenges rather than threats.

3. **Emotional stress coping strategies**: Emotional coping strategies, seeking and obtaining social support from others are effective. The perception that one has emotional support, and is cared for and valued by others tends to be an effective buffer against the ill effect of many stressors (Taylor, 1995).

4. **Cognitive stress coping strategies**: Cognitive coping does not eliminate stressors, but it can help people perceive them as less threatening and thus make them less disruptive.

5. **Exam stress coping strategies**: Most students experience some level of stress during an exam. However, when stress affects exam performance it has become a problem. A small amount of stress may be beneficial because it sharpens the senses and the mind. In large excess, test stress may be overwhelming and cause discomforting
physical symptoms. The good news is that there are many strategies that students may use to combat test stress.

6. **Conflict Resolution Strategies**

Conflict in the classroom is not a pleasurable topic. Conflict can be very uncomfortable when it occurs and, sadly, educators are rarely trained on how to handle tense situations in the classroom. The purpose of this Strategy is to examine some of the realities of conflict in the classroom and to provide some strategies for minimizing the likeliness of it occurring and for dealing with it when it does occur. Unresolved conflict can cause extreme stress on their bodies, and affect their health. Conflict with others can be easily resolved when they practice these strategies.

7. **Class room stress coping strategies**:- Strategies for coping with class room stress can be organized into three categories:- Unhealthy stress that is pervasive and continuous is damaging the teaching learning process. Each person responds to stress in a unique way and his or her style of living must be accommodated and co-operative supportive learning environments are desirable because they empower students and teachers to use stress in productive ways.

8. **Teacher Tips Strategies**: - The relationship between teacher and learner essentially possesses problems of human relations. When teacher has to give an opportunity to define at least part of the school context, they are able to eliminate many stressors and acquire skills in management.

9. **Parental Tips Strategies**:- The major source of stress in students is the parental expectation that they perform at levels inappropriate for their stage of development. Parents should play a major role in the
stress coping process. So they also are included in the stress coping process.

4.3.3 Steps followed in the preparation of coping strategy:-

Richard Lazarus (1982), recommended defense or task oriented coping strategies. These strategies usually involve 4 steps.
1. Identifying the source of stress.
2. Choosing an appropriate course of action for stress reduction.
3. Implementing the plan and
4. Evaluating its success

Schematic representation of these steps is given below:-
Step I: Identifying the source is often difficult. A student experiencing study problems, financial problems and problems with her peers must decide which problem she wants to work on first.

Step II: Once the problem is identified, people can choose from among several strategies. There are many alternatives for managing such a situation. Select the most suitable alternative for reducing stress.

Step III: After selecting the best course of action, the strategy will be implemented according to the situation.

Step IV: The last step is evaluating its success ie, whether the selected strategy will be helpful to reduce stress effectively.

4.3.4 Pattern followed

The pattern followed for the selection of different phases in Package based on Coping Strategies is shown in figure 4.3
Rehydrate
Healthy food
Exercise
Play
Running
Walking
Maintain good posture
Yoga
Visualization
Sleeping
Laughing
Crying
Hobbies
Humor
Listening music
Praying
Escapism does not help

Reward yourself with the thing you like
Keep a Journal
Choose present moment
happiness
Be optimistic
Time to say goodbye to fear
Don’t compare yourself with any one
Acknowledge your feelings
Emotional trophy closet
Say no to black & white thinking
Behavioral rehearsal
Write a letter to help yourself
Be confident
Don’t always try to please others
Facial feedback
Raise your tolerance
Don’t stop your life
Stop striving for perfection
Bounce back from your mistakes

Share your feeling
Learn to say no
Avoid stress
Alter the situation
Stop worrying
Pare down to do list
Positive focus
Compromise
Count down
Anger ball
What would you do
What color is conflict
Tracking
I represent conflict
Cool off
Prepare I messages
Reflection exercise
Accept responsibility

Avoid hot button topics
How to be more assertive
Accept things you cannot change
Acceptable V/S not acceptable
Thinks before reacting
Attack the problem not the person
Believe in yourself
I respect We respect

Mind fullness
Self instructional training
Gossip game
Identify the triggering situation
Test your predictions
Do things that will make you happy

Phase: - 4
Evaluation Phase

Post Test
Analysis of Result
Policy suggestion

Figure 4.3 Phases in Package based on Coping Strategies
4.3.5 Training and techniques Used in Package based on Coping Strategies

Before going in to the content and training dynamics of the four sessions and various activities used in the training and transfer phase, a brief description of some of the tools and techniques used are indicated below.

**Journaling**

Journaling is a term coined for the practice of keeping a diary or journal that explores thoughts and feelings surrounding the events of one's life. Journaling, as a stress management and self-exploration tool, is not the same as simply recording the happenings in one's life, like keeping a log. To be most helpful, student must write in detail about feelings and cognitions related to stressful events. Journaling allows students to clarify their thoughts and feelings, thereby gaining valuable self-knowledge. It's also a good problem-solving tool; oftentimes, one can hash out a problem and come up with solutions more easily on paper. Journaling about traumatic events helps one process them by fully exploring and releasing the emotions involved, and by engaging both hemispheres of the brain in the process, allowing the experience to become fully integrated in one's mind. Students who use journals are actively engaged in their own learning and have the opportunity to clarify and reflect upon their thinking. Journal writing offers students to write about stress often associated with marking. Here we adopt personal journal writing.

**Experience Sharing**

Coping mechanisms suggests it is beneficial to share your feelings with someone who is having a similar emotional reaction to the same scenario. The investigator encourages the students to share their experiences in the context of each stress attributes. Caution is taken to ensure free wheel atmosphere,
comfortable and confident. The students are not forced or compelled to share; rather they are encouraged to refer their own experience in a context.

**Group Games**

Enjoying a good game with a group of friends, or playing something relaxing can take their mind off of their stressors, and can lead to a more relaxed state. Games are stress relievers that work well because people enjoy them enough to use them regularly. Games provide a slice of work-free and responsibility-free time in their schedule. This can be especially welcome for people who feel overwhelmed by all that they have to do, and need to recharge their batteries by doing something they enjoy. For those who feel overwhelmed by responsibility, it may be difficult to find the time or give themselves permission to take a break from a busy schedule and just sit and relax. Engaging in games, however, can provide a break with a purpose, which can help people feel that they're not just ‘sitting around’, but are using their down time for something productive. Either way, games provide a nice break in a busy week. One study found that those who engage in physical leisure activities for at least 20 minutes once a week are less susceptible to fatigue.

**Brainstorming**

Brainstorming combines a relaxed, informal approach to problem solving with lateral thinking. It encourages people to come up with thoughts and ideas that can, at first, seem a bit crazy. Some of these ideas can be crafted into original, creative solutions to a problem, while others can spark even more ideas. This helps to get people unstuck by "jolting" them out of their normal ways of thinking. Therefore, during brainstorming sessions, people should avoid criticizing or rewarding ideas. They are trying to open up possibilities and break down incorrect assumptions about the problem's limits.
Judgment and analysis at this stage stunts idea generation and limit creativity. Evaluate ideas at the end of the brainstorming session – this is the time to explore solutions further, using conventional approaches. A number of brainstorming methods were used for the study.

**Express yourself** Talk about it, write about it, shout or moan about it: expressing students feelings can help to relieve stress. Acknowledging a problem to themselves and to others can be the first step in dealing with it. Sometimes having a good cry or bashing a pillow can release emotional pressure and calm their feelings of anxiety.

**Visualization Technique**

Visualization is an incredible tool for personal development. Practicing guided imagery is a fun and simple way to take a break from stress, clarify what they want, and build optimism. It's a relatively quick pathway to mental peace. Many people turn to visualization to help them move past obstacles in their lives, relax and relieve stress, resolve or cope with stress, or heal themselves emotionally and physically. We all visualize. There is no skill we need to learn, nor any place we need to visualize. Since thoughts and emotions emanate from our mental landscape, day dream with confidence and without enjoyment, and our landscape will uncover new vistas. Seeing ourselves with the desired result helps us avoid a lot of the frustration involved with studying towards a goal. Rather than making mistakes as they go, mental rehearsal allows students mind to create solutions for them before they even begin study.

**Buzz-grouping**

It is a small discussion group formed for a specific task such as generating ideas, solving problems, or reaching a common viewpoint on a topic with a specific period of time. Large groups may be divided in to buzz
groups after an initial presentation in order to cover different aspects of a topic or maximize participation. This activity can be used to build an agenda, evaluate an activity, workshop or process, warm up a group to a new topic, solve problems, share ideas, gather questions and gather feedback. Various activities incorporated in the Package based on Coping Strategies, carries different modes of buzz groupings.

**Keep them cool**

Feeling stressed is normal. And so are setbacks in dealing with stress. If they lapse into their old ways, do not give up. Focus on what they can do to gain control of the situation. One easy way to help them keep them cool and lighten their load is to remember the four As of managing stress: avoid, alter, adapt or accept!

**Role plays**

It is now generally accepted that students learn and grasp by various ways such as reading, listening, watching, participating etc. It is most useful to help students or their team prepare for unfamiliar or difficult situations. Also, by preparing for a situation using role-play, students can build up experience and self-confidence with handling the situation in real life, and they can develop quick and instinctively correct reactions to situations. This means that students will react effectively as situations evolve, rather than making mistakes or becoming overwhelmed by events. At the top of the list, when the investigator participates in the activity to be learned, absorption is faster, more complete and more concentrated, and retention is much greater.

**Listening Music**

Music can help as a stress reliever. Creating playlists for various moods (a cathartic mix for when you want to process feelings, an upbeat mix
for when you need more energy, etc.) can help you to relieve stress passively, enjoyably, and conveniently.

**Smiling**

A good laugh can be a great stress reliever: It releases endorphins and other healthy hormones, takes their mind off of stress, and can even provide a decent physical workout if they really get going. It also leaves them in a more positive frame of mind, and can bond them to those with whom they share a good laugh. The investigator encourages passing a smile every day to everyone throughout the training phases. Laughter can also stimulate circulation and aid muscle relaxation, both of which help reduce some of the physical symptoms of stress. Negative thoughts manifest into chemical reactions that can affect student’s body by bringing more stress into their system and decreasing their immunity. In contrast, positive thoughts actually release neuropeptides that help fight stress.

**4.3.6 Administration of the Package**

The Package based on Coping Strategies was administered among the 150 students under the two selected schools. Before the implementation of the Package based on Coping Strategies, the level of Academic stress and style of Coping was assessed using the Stress Coping Scale. Students were given the training followed by transfer and evaluate their improvement in coping ability after the Package based on Coping Strategies as Post Test. Their reflections about the experience of the training were also collected as a feedback to ensure the quality of Package based on Coping Strategies.

**4.3.4 Stress Coping Scale**

The investigator reviewed the literature related to coping with stress in detail. The tools used by the previous researchers to measure coping with
stress were also examined. The Stress Coping Scale for the study was constructed and standardized by the investigator in consultation with experts. The scale is used to assess coping methods and stress responses in students to identify specific coping styles and the extent to which a student relies on one or some more than others or to identify potentially harmful coping strategies.

The steps followed in the construction of the scale are described under the following heads.

4.3.4.1 Preparation of the Scale
4.3.4.2 Try out of the Draft Scale
4.3.4.3 Item Analysis
4.3.4.4 Instruction for Administration and scoring of Stress Coping Scale
4.3.4.5 Validity of the Scale
4.3.4.6 Reliability of the Scale

4.3.4.1 Preparation of the Scale

Before constructing the 4.3.4.1 Preparation of the Scale the investigator considered many of the stressful situations that the students now face. The investigator has done a thorough review of related literature and also consulted many experts in the field and had long discussion with several psychologist, counselors and higher secondary school teachers. Finally some thrust ways of coping were identified. Items were prepared for nine categories of stress coping. Utmost care was taken to make the items clear, precise and comprehensive with regard to construct measured.

Hundred and twenty five Scale items were prepared and were scrutinized by a team of experts in the field. Some items were detected and some others were re-edited in the light of expert criticism. The number of items in the draft scale was thus reduced to hundred and five. The Draft Stress
Coping Scale of 105 items and its Response sheet are provided in Appendix VIII & IX respectively.

4.3.4.2 Try out of the Draft Scale

The draft scale was administered on a sample of 400 students studying in XII. In selecting the sample, care was taken to give due representation to sex, locality, subject and type of management of the school. A sincere effort was made to get correct data by administering the scale.

After prescribed time limit the response sheets were collected. The response sheets were scored with the help of the previously prepared scoring key.

4.3.4.3 Item Analysis

For item analysis, 380 response sheets, complete in all respects, were selected. The item analysis was carried out using the method suggested by Edwards (1969). In order to facilitate computational procedures, 370 sheets were randomly drawn and arranged in descending order of scores. The upper 100 sheets (27%) and lower 100 sheets (27%) were treated as higher and lower group respectively.

Under each group, for each item, the number of students making response to Always, Often, Sometimes, Rarely and Never were found out and presented in the form of a frequency table. Then the t value for each item was calculated to find out the discriminating power. The t value showed the extent to which the higher group and lower group are differentiated on a given item in the scale.

The following formula was used to calculate the t value

\[ t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\sigma_1^2}{N_1} + \frac{\sigma_2^2}{N_2}}} \]
\begin{align*}
\bar{X}_1 &= \text{Arithmetic Mean of the given item for higher group} \\
\bar{X}_2 &= \text{Arithmetic Mean of the given item for lower group} \\
\sigma_1 &= \text{Standard Deviation of higher group} \\
\sigma_2 &= \text{Standard Deviation of lower group} \\
N_1 &= \text{Number of subjects in the higher group} \\
N_2 &= \text{Number of subjects in the lower group}
\end{align*}

Those items exceeding the t value of 3.33 were selected for the final scale. The table of t values of all 105 items in the Draft scale is given in Appendix X.

4.3.4.4 Instruction for Administration and scoring of Stress Coping Scale

The standardized Stress Coping Scale was given to students along with the response sheet. For each question there were five options. The students were instructed to choose one among the five options and put a tick mark in the respective box for each questions. As it is a scale designed for assessing the Stress Coping style of students no strict time boundary was kept.

The Stress Coping Scale consists of 60 statements as questions, each statement has five options and each option is ranked with a five point rating scale. The responses and the scores assigned to each response are as follows.

\begin{center}
\textbf{Scoring key of Stress Coping Scale}
\end{center}

\begin{center}
\begin{tabular}{|l|l|}
\hline
\textbf{Response} & \textbf{Score} \\
\hline
Always & 5 \\
Often & 4 \\
Sometimes & 3 \\
Rarely & 2 \\
Never & 1 \\
\hline
\end{tabular}
\end{center}
The maximum score that can be attained by an individual for Stress Coping Scale is 300 (60×5) and the minimum score is 60 (60×1).

The details about the number of items retained under various categories of Stress Coping Scale is shown in table 4.2

Table 4.2

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Component</th>
<th>Serial No. of items</th>
<th>Total No. of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physical Stress</td>
<td>7,13,19,25,31,54,96</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>Psychological Stress</td>
<td>3,4,39,56,72,73,80,92,105</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>Emotional Stress</td>
<td>2,26,27,44,50,51,61,77,97</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Cognitive Stress</td>
<td>9,20,55,59,65,75,76,87,89</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Exam Stress</td>
<td>5,11,15,29,41,47,52,57,66</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Conflict Stress</td>
<td>67,68,69,81,99,101,102,104</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>Classroom Stress</td>
<td>45,60,71,79,82,83,84,86,91</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

A copy of the final Stress Coping Scale and the scoring key are given in Appendix XI & XII respectively.

4.3.4.5 Validity of the Scale

The criterion validity of the scale was found out by correlating the present scale with an external criterion that is students Stress management Scale (Koolie & Fikel, 2010). Both the scale was administered as the sample of 100 students and the correlation was found out as 0.73.

The content validity of the test was maintained by careful reference to the current literature as well as by consultation with experts.
Thus the scale as a whole is reasonably valid and reliable instrument for the purpose of the present investigation.

4.3.4.6 Reliability of the Scale

The reliability of the Stress Coping Scale was found by split half method. The reliability coefficient of the test was found to be 0.81. This shows that the Stress Coping Scale has high reliability.

4.3.5 Package appraisal questionnaire for Students –feedback reflection

The Package based on Coping Strategies was prepared for obtaining the feedback from the students. It consists of 12 statements and students were instructed to read each statement carefully and to write down their opinion in ‘yes’ or ‘no’ format. The question covers various categories of the Package in terms of its language, stories and activities incorporated reflections of the participants and their suggestions and recommendations. The questionnaire is validated with the team of experts who validated the Package based on Coping Strategies. The Package appraisal questionnaire is administered among the students after the completion of Package based on Coping Strategies. It was administered among the 150 students who underwent the experimental training using the Package based on Coping Strategies. They were instructed to reflect their feedback on each question with a ‘yes’ or ‘no’ response. The Package appraisal Questionnaire for students is given in Appendix XIII.

4.3.6 Package appraisal questionnaire for Experts –policy reflection

The Package based on Coping Strategies appraisal questionnaire was prepared for suggesting the policy categories of the Package from experts. It consists of 10 statements and experts were instructed to read each statement carefully and to write down their opinion in ‘yes’ or ‘no’ format. The question
covers various categories of the Package in terms of its language, stories and activities, incorporated reflections of the participants and their suggestions and recommendations. The questionnaire is validated with a team of experts who validated the Package based on Coping Strategies.

The Package appraisal questionnaire was administered among the 15 experts who validated the Package based on Coping Strategies. They were instructed to suggest their opinion on different aspects of the Package based on Coping Strategies for proposing policy measures based on the study. The Package appraisal Questionnaire for Experts is given in Appendix XIV.

4.3.7 Delayed Memory Stress Coping Scale

To assess the retention coping ability in Academic Stress, the investigator constructed the Delayed Memory Stress Coping Scale with the help of supervising teacher. A Delayed Memory Stress Coping Scale helps to find out the retention capacity of the Stress Coping Strategies. For the present study, a Delayed Memory Stress Coping Scale was prepared to check the retention capacity of students in the Experimental group and Control group. The Delayed Memory Stress Coping Scale used for the study and its Response sheets are given in Appendix XV and XVI.

4.4 POPULATION OF THE STUDY

The population of the Study consists of all the students studying in standard XII and all the Teachers in the Higher Secondary School of Kerala.

4.5 SAMPLE SELECTED FOR THE STUDY

Sampling for the present study is done in two phases as the study involves Survey and Experimental methods. For the Survey, the Stratified random sampling technique was adopted since it ensures representativeness and is applicable when the population is composed of strata of different sizes.
In the selection of the sample, due representation was given to factors like Gender, Locale, Type of management of school and subject. The details of the sample selected are given under the following heads.

4.5.1 Sample for the Survey study

4.5.2 Sample of the Experimental study

4.5.1 Sample for the Survey study

For the present study, the survey confined to a sample of 900 students of Standard XII and 200 Teachers at the Higher Secondary level. The students selected for the study are of standard twelve of the Higher Secondary Schools in six districts of Kerala. The list of school is given as Appendix XVII.

Care was taken to give due representation to the following.

- a) Sex of the subject
- b) Locality
- c) Type of management of the school
- d) Subject

The details regarding the breakup of the sample selected for the Survey are given in table 4.3
### Table 4.3
Breakup of the sample of Higher Secondary School Students Selected for Survey

**Total sample = 900**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Locale</th>
<th>Type of management of school</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Boys = 420</strong></td>
<td><strong>Rural = 450</strong></td>
<td><strong>Govt. = 300</strong></td>
<td><strong>Science = 300</strong></td>
</tr>
<tr>
<td>Govt. = 140</td>
<td>Govt. boys = 80</td>
<td>Rural Boys = 80</td>
<td>Boys = 140</td>
</tr>
<tr>
<td>Aided = 180</td>
<td>Govt. girls = 80</td>
<td>Rural Girls = 80</td>
<td>Girls = 160</td>
</tr>
<tr>
<td>Unaided = 100</td>
<td>Aided boys = 80</td>
<td>Urban Boys = 60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aided girls = 60</td>
<td>Urban Girls = 80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unaided boys = 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unaided girls = 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Girls = 480</strong></td>
<td><strong>Urban = 450</strong></td>
<td><strong>Aided = 300</strong></td>
<td><strong>Commerce = 300</strong></td>
</tr>
<tr>
<td>Govt. = 160</td>
<td>Govt. boys = 60</td>
<td>Rural Boys = 80</td>
<td>Boys = 140</td>
</tr>
<tr>
<td>Aided = 120</td>
<td>Govt. girls = 80</td>
<td>Rural Girls = 60</td>
<td>Girls = 160</td>
</tr>
<tr>
<td>Unaided = 200</td>
<td>Aided boys = 70</td>
<td>Urban Girls = 70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aided girls = 70</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unaided boys = 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unaided girls = 90</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Urban = 450</strong></td>
<td><strong>Unaided = 300</strong></td>
<td><strong>Humanities = 300</strong></td>
<td><strong>Girls = 180</strong></td>
</tr>
<tr>
<td>Govt. boys = 60</td>
<td>Rural Boys = 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt. girls = 80</td>
<td>Rural Girls = 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aided boys = 90</td>
<td>Urban Boys = 60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aided girls = 70</td>
<td>Urban Girls = 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unaided boys = 60</td>
<td>Urban girls = 90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unaided girls = 90</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.5.2 Sample for the Experimental Study

Sample from the Experimental part was selected from among the 900 students selected for Survey. The investigator selected one non equivalent group from Science, Commerce and Humanities Subject in each school with the help of concerned teachers. To make the Experimental group and Control
group around 25 students of standard XII from each division and each subject of the selected institution are joined together to form one group. Likewise total three groups were formed. Then three of the Parallel group’s one from Science, Commerce and Humanities were randomly selected as the Experimental group and other as Control group. Even though the initial sample consisted of 55-60 students in each group, those who did not attend the Pre-test and Post test were avoided from the sample selected. Thus the final sample was reduced to 300 students.

The details regarding the breakup of the sample selected for Experimentation is shown in figure 4.4.
Breakup of the final sample selected for Experimentation

Figure 4.4
Sample selected for administering the Package appraisal questionnaire among the students includes all the 150 students who had undertaken the Experimental training.

Sample selected for administering the Package appraisal questionnaire among experts includes 15 experts who had validated the Package based on Coping Strategies.

**4.6 DATA COLLECTION PROCEDURE**

The procedure adopted for the collection of data is given under the following heads.

4.6.1 Collection of Data for the Survey study

4.6.2 Collection of Data for the Experimental study

**4.6.1 Collection of Data for the Survey study**

The data collection was done by the investigator herself. She made necessary arrangements with the heads of the institutions by seeking permissions and fixing up the time schedule for administering the different tools. In administering the scale, a uniform procedure was adopted in all the schools.

4.6.1.1 Administering the Questionnaire for understanding the facilities given and activities conducted in the schools

For reducing Academic Stress among Higher Secondary School Students, the questionnaire was given to a total of 200 Higher Secondary School Teachers.
4.6.1.2 Administration of the Academic Stress Scale

Academic Stress Scale was administered to a total of 900 Higher Secondary School Students. First the response sheets were given to each student. Then the investigator explained how the students have to fill up the details required in the response sheet and also the method of making their responses. Then the question booklets were distributed. After the stipulated time of 60 minutes the response sheets were collected along with the Academic Stress Scale. The scale was administered to the whole sample in the same manner.

4.6.2 Collection of Data for the Experimental study

Permission to conduct the Experiment for one month was secured in advance from the respective school Principals.

The procedure adopted in conducting the Experiment is given below.

4.6.2.1 Pre-Test administered
4.6.2.2 Learning by the Experimental group
4.6.2.3 Learning by the Control group
4.6.2.4 Post Test administered

4.6.2.1 Pre-Test administered

The standardized Stress Coping Scale was administered to the students (Experimental and Control group) to know their Stress coping style and also to know whether there is any significant difference in the Academic Stress of these groups. The answer sheets were collected back and valued. The data were tabulated and used for statistical analysis.
4.6.2.2 Learning by the Experimental group

After administering the Pre-test, the Experimental groups (Science, Commerce and Humanities) were trained using Package based on Coping Strategies. There were 9 categories and 84 strategies and the duration of each strategy is 40 minute. The investigator gives a clear explanation of how to do something, and the students observe, practice collectively and individually and eventually master the skill. Package based on Coping Strategies permits each student to practice various Strategies according to their stress level.

After practicing each strategies of the Package there was a session for discussion. With the help of the investigator, the students check themselves how vulnerable they are. They listen the stories very carefully, observe video lesson and do the activities. The Experimental group trained the Package based on Coping Strategies for one month.

4.6.2.3 Learning by the Control group

After administering the Pre-Test to Control group, they were trained in Stress Coping using the Present Stress Coping Approach. The investigator arranged the expert’s classes, career guidance programs, counselor’s classes, talks of eminent personalities and practice various activities related to the topic. Equal time and effort was given to the Control group also. Thus every care was taken to make the study a reliable one.

4.6.2.4 Post Test administered

After completing the training by the Experimental and Control groups, the Stress Coping Scale was again given to both the groups, to know whether there is any improvement in their coping ability and reduction in academic stress. The response sheets were collected back. Every precaution was taken to make the study as reliable and valid as possible.
4.6.2.5 Administration of Delayed Memory Stress Coping Test

A Delayed Memory Stress Coping Test was administered to the Experimental group and the Control group, twenty days after the Post Test in order to measure their retention capacity. The Delayed Memory Stress Coping Test and response sheets were collected back.

4.7 STATISTICAL TECHNIQUES EMPLOYED

The responses given by the different categories of respondents viz; teachers, students etc. were treated separately. To test the tenability of the hypotheses formulated for the present study the following statistical techniques were employed.

1. Percentage Analysis
2. Test of significance of difference between Means
3. Analysis of Variance (ANOVA)
4. Analysis of Co-variance (ANCOVA)
5. Scheffe's Multiple Comparison
6. Pearson's Product Moment Coefficient of Correlation