CHAPTER IV
RESEARCH METHODOLOGY

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CHAPTER IV
RESEARCH METHODOLOGY

4.1 Introduction

Review of literature regarding studies related to stress and coping among adolescent students is explained in detail in the previous chapter. A literature survey conducted in the area of the research interest helped to obtain a comprehensive view of earlier studies in the particular subject. The literature survey helped to understand important variables related to the study and to develop theoretical framework, objectives and research hypotheses for the study. The study titled “Coping with stressors among adolescent students: A study with particular reference to Kerala” attempts to explore the causes of stress and Ways of Coping with stressors among adolescent students. The methodology adopted for the study is explained in detail in this chapter. The representation of the universe in the study, sampling process, sample size, pilot study, data collection procedures, methods and tools of data collection, techniques and tests for data analysis, ethical considerations and limitations of the study are explained in this chapter.

4.2 General Objective of the Study

The general objective of this investigation is to study coping with stressors among adolescent students. An adolescent student faces different stressors in his life related to his developmental needs, developmental demands, education and life events. The Ecological Systems theory (Bronfenbrenner, 1979), Person in Environment theory (Caplan, 1983), Stress and Coping theory (Folkman & Lazarus, 1984) are taken into consideration in the study on stressors. The stressors related to life events and academics are considered as aspects contributing to perceived stress among adolescent students. Perceived stress of adolescent students are analysed. Self esteem is chosen as personality variable. The Stress and Coping theory by Folkman & Lazarus (1984) and Carver & Scheir (1989) are taken into consideration in the aspect of coping. The theories of Proactive coping by Greenglass (1999) and Schwarzer’s Proactive Coping theory (1999) are considered in the study of Proactive coping.
4.3 Specific Objectives of the Study

- To identify the various stressors among adolescent students.
- To understand the academic stress among adolescent students.
- To evaluate the perceived stress among adolescent students.
- To assess the relationship between perceived stress and self esteem among adolescent students.
- To analyse the Ways of Coping with stressors among adolescent students.
- To analyse the proactive coping among adolescent students.

4.3.1 Qualitative dimension of the study

From the review of literature, the gap in the knowledge base demands a study that is capable of providing better subjective explanation of student stressors and ways of coping with stressors, through qualitative studies among individuals. The specific objectives of the qualitative dimension of the study are:

- To identify the various stressors among adolescent students and
- To understand the Ways of Coping with stressors among adolescent students.

4.4 Key Terms in the Study

The key terms of the study and the operational definition of the variables studied are described in this section.

4.4.1 Stress and Stressors

According to Lazarus & Folkman (1984), “Stress is a mental or physical phenomenon formed through one’s cognitive appraisal of the stimulation and is a result of one’s interaction with the environment”.

Lazarus (1984) defined stress as “a fluid, dynamic, constantly changing, bidirectional relationship between the person and the environment and as such considered as an ordinary component of everyday living”.

According to Lazarus & Cohen (1977), “Stressors are demands made by the internal or external environment that upset balance, thus affecting physical and psychological well-being and requiring action to restore balance.”
Holmes and Rahe,(1967) defined a stressor for human beings as an event that involves a major change in a person’s ongoing life pattern. Stressors affecting students are characterized as academic, financial, time, health related, and self imposed (Godman, 1993).

In this study, stressors are difficult situations related to domains of academics, peer group, family, intrapersonal and social life.

4.4.2 Academic Stress

Bisht (1989) has 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”.

According to Bisht (1989),

“Academic stress reflects perception of individual’s academic frustration, academic conflict, academic pressure and academic anxiety. The four components of academic stress as follows: Academic frustration is a state caused by harm of some academic goals. Academic Conflict is the result of two or more incompatible response tendencies to academic goals. Academic Pressure occurs when the student is under heavy demands of time and energy to meet academic goals. Academic Anxiety is the apprehension of harm to some academic goals”.

According to Sun, Dunne, Hou,& Xu (2011), the variables causing academic stress are “pressure from study, workload, worry about grades, self-expectation, and despondency”.

In this study, Academic stress is the stress related to studies and student life. The variables causing academic stress considered in this study are: Pressure from study, workload, worry about grades, self-expectation, and despondency.

4.4.3 Perceived Stress

Perceived stress is the feelings or thoughts that an individual has about the stress they are experiencing at a given point in time or over a given time period. It is not measuring the stressful events that might have occurred to the person, but rather assess the feeling of the individual about the general stressfulness of life and ability to handle such stress. Individuals may suffer similar negative life events but the impact
or severity of these may differ as a result of factors such as personality, coping resources, and support (Cohen, 1983).

- In this study, Perceived stress is the stress perceived by the individual over the period of past one month.

4.4.4 Self-esteem

Self-esteem is only one component of the self-concept. Rosenberg defines self concept as "totality of the individual's thoughts and feelings with reference to himself as an object". The important parts of self-concept are self-esteem, self-efficacy or mastery, and self-identities.

“Self-esteem is a positive or negative orientation toward oneself” (Rosenberg, 1969). Self-esteem is an overall evaluation of one's worth or value. Self esteem refers to an individual’s overall positive evaluation to the self” (Rosenberg, 1991).

In this study, self-esteem is the overall evaluation of one's worth.

4.4.5 Coping

(Lazarus (1991) broadly defined Coping as "...cognitive and behavioural efforts to manage specific external or internal demands (and conflicts between them) that are appraised as taxing or exceeding the resources of a person".

Coping is defined as the repertoire of cognitive, behavioural and emotional responses that may be used to handle stress. The responses are divided into problem focused coping, emotion focused coping and social support seeking (Rao, Subbalakhshmi & Prabhu, 1989).

In this study, Coping is the cognitive and behavioural efforts to manage difficult situations.

4.4.6 Ways of Coping

Ways of Coping are problem-focused and emotion-focused (Folkman & Lazarus, 1988), Compas (1988).

In this study, coping is the individual’s effort to manage demands that are considered taxing or beyond the persons resources. Ways of Coping are problem-focused and emotion-focused. According to Carver (1997), the sub scales of Coping are “active coping, acceptance, planning, positive reframing, use of instrumental social support, use of emotional social support, venting, humour, denial, self blame, self distraction, behavioural disengagement and substance use”.

In this study, Ways of Coping are problem-focused and emotion-focused coping strategies used in dealing with stress. Problem-focused coping strategies are efforts to actively alleviate stressful circumstances. Emotion-focused coping strategies involve efforts for regulation of the emotional consequences of stressful or potentially stressful events. The sub dimensions of Ways of Coping are acceptance, active coping, planning, positive reframing, use of instrumental support, humor, use of emotional support, denial, self blame, religion, venting, behavioural disengagement, self distraction and substance use. The categories such as acceptance, active coping, planning, positive reframing and use of instrumental support are considered as sub dimensions of problem-focused coping. Use of emotional support, humor, denial, self blame, religion, venting, behavioural disengagement, self distraction and substance use are considered as sub dimensions of emotion-focused coping strategies.

### 4.4.7 Proactive Coping

“Proactive coping is distinguished by three main features: It integrates planning and proactive strategies with proactive self regulatory goal attainment; it integrates proactive goal attainment with identification and utilisation of social resources; and it utilises proactive emotional coping for self regulatory goal attainment” (Greenglass, Schwarzer, & Taubert, 1999).

According to Greenglass, Schwarzer, & Taubert, 1999, the seven dimensions of proactive coping are “proactive coping, reflective coping, strategic coping, preventive coping, instrumental support seeking, emotional support seeking and avoidance coping”.

In this study, the dimensions of proactive coping assessed are proactive coping, reflective coping, strategic coping, preventive coping, instrumental support seeking, emotional support seeking and avoidance coping.

### 4.4.8 Sociodemographic Variables

In this study, age, gender, course and stream of study, type of school, religion, type of family, ordinal position in family, education and occupation of parents and financial category of the family are the sociodemographic variables considered

### 4.4.9 Adolescents

Adolescents are children aged 10-19 years (UNICEF, State of World’s Children, 2011). In this study, adolescents are individuals aged 16-19 years.
4.4.10. Students

A student is a person who is learning at a college or university, or sometimes at a school. In this study, adolescent students are persons who are learning in Plus One and Plus Two in Higher Secondary Schools of State of Kerala following Kerala State Syllabus.

4.4.11. Kerala

Kerala is a state in India, which lies along the coastline, to the extreme southwest of the Indian peninsula, bordered by the Arabian Sea on the west and the mountains of Western Ghats on the east.

4.5 Research Hypotheses

- There exists high level of perceived stress among adolescent students.
- There exists a significant difference in academic stress in relation to the type of school.
- There exists a significant association between perceived stress and self esteem among adolescent students.
- There exists a significant difference in problem-focused coping among adolescent students based on gender.
- There exists a significant difference in emotion-focused coping among adolescent students based on gender.

4.6 Research Design of the Study

Research design is the conceptual frame by which the research is to be carried out. A research design addresses different aspects of the research procedure, from philosophical assumptions to data analysis. The research design adopted in this research is mixed methodology: triangulation design, and descriptive design.

4.6.1 Mixed Methodology: Triangulation Design

A design might be considered mixed if it employs qualitative and quantitative approaches at any stage, including development of research questions, sampling strategies, data collection approaches, data analysis methods or conclusions (Creswell, 2003). The Mixed methodology research design used in this study is Triangulation design. Creswell and Plano Clark (2007) stated that the most common and well known approach to mixed methods is the Triangulation design. The intent of
the Triangulation Design is to obtain different, but complimentary data on the same topic. In this study, Triangulation design is used to better understand the stressors and coping with stressors among adolescent students.

The first section of this study is a qualitative exploration of stressors among adolescent students and Ways of Coping with stressors among adolescent students for which focus group interviews were done to collect data. Data generated from the qualitative study is thematically coded and analysed. The second section of the study is the quantitative analysis. The quantitative study is aimed at identifying the various stressors and Ways of Coping among adolescent students. Data from the qualitative study and quantitative study were collected and analysed separately. Data from both phases were then converged in the final analysis to provide a more complete description. The mixing of the data provides a more complete description of the variables studied.

4.6.2 Descriptive design

The study also takes a descriptive approach. The sociodemographic details of the respondents are studied. The stress related to daily life events, academic stress and the perceived stress experienced by adolescent students are analysed. The relationship of perceived stress and self esteem are assessed. The Ways of Coping and dimensions of proactive coping are also assessed. The interrelationship of socioeconomic variables with academic stress, perceived stress and proactive coping are critically evaluated. Descriptive design is adopted for studying the aspects related to academic stress, perceived stress, self-esteem and coping.

4.7 Sampling Design

4.7.1 Sampling frame

Sampling frame is the listing of all units in the target population and the target population is the set of units to be studied. In this study, sampling frame consists of all students studying for Plus One and Plus Two in the Higher Secondary Schools in the State of Kerala, following Kerala state syllabus. The list of all the Higher Secondary schools in Kerala offering Plus One and Plus Two course and the respective strength of students in each school for each stream of study is obtained from the website of Department of Higher Secondary Education, Kerala.

4.7.2 Universe
All students studying for Plus One and Plus Two in the Higher Secondary Schools following Kerala state syllabus, in the state of Kerala.

**4.7.3 Population**

All students studying for Plus One and Plus Two in the Higher Secondary Schools of Kerala state following Kerala state syllabus, in the state of Kerala.

**4.7.4 Sample**

All students studying for Plus One and Plus Two in Higher Secondary Schools of Kerala state following Kerala state syllabus.

**4.7.5 Unit**

One student studying for Plus One or Plus Two in the Higher Secondary Schools of Kerala state following Kerala state syllabus, aged between 16-19 years.

**4.7.6 Inclusion and Exclusion criteria**

**4.7.6.1 Inclusion criteria**

Student between 16 years and 19 years

**4.7.6.2 Exclusion criteria**

Students above 19 years

Student with self-reported history of mental illness.

Student with self-reported history of chronic physical illness.

**4.8 Sampling method**

**4.8.1 Selection of the locale of the study**

Kerala is the southernmost state of India. There are fourteen districts in Kerala. Among the fourteen districts in Kerala, one district is selected randomly by lottery method, as the setting of the study i.e. Kottayam. Kottayam is located in Central Kerala. Kottayam is often described as “the land of letters, latex, legends and lakes”. Kottayam is also called as “Aksharanagari” which means the city of letters (www.keralagov.in). It is often mentioned in the media as the “educational hub” of Kerala state. Another remarkable feature of Kottayam district is that, people from many other districts live in Kottayam district for higher education and employment. The study completely focuses on the affective aspects of the students. Hence the researcher is required to contact the students continuously for the smooth conduct of the study. Moreover, both qualitative study and quantitative study needs to be conducted. The researcher felt that in depth study could be conducted in a better way if the researcher concentrate on samples from one district.
4.8.2 Selection of the samples for the study

Kottayam district is selected randomly as the setting of the study. The researcher contacted Kottayam District Educational Office and the list of Higher Secondary Schools in the district of Kottayam, following Kerala state syllabus was received. From the list of Schools in the Kottayam district, the higher secondary schools are again classified into three strata: Government School, Aided School and Un Aided School. Each of the three categories of Government School, Aided School and Un Aided School are classified into Co educational school, Boy’s school and Girl’s school. In the next stage of sampling, among the Government School and Aided School, one Co educational school, Boy’s school and Girl’s school are selected randomly. From the list of Un Aided Schools, all the unaided schools were Co educational. Two Un Aided schools were selected randomly. Total of eight schools are selected.

From each of the randomly selected Government School and Aided School, 25 students each from Plus One and Plus Two were randomly selected as samples of quantitative study. The total number of samples is 450. For qualitative dimension of the study, one student is randomly selected (according to a randomly selected roll number) from all the classes of Plus One and Plus Two course in the particular school for participation for data collection. If the student of the selected roll number is absent or refused participation, the class leader is requested for participation in the focus group interview. The total number of samples taken for the qualitative study is 68 (15% of the samples taken for quantitative study).

4.8.3 Sample Size Calculation

Pilot study was done in a school to assess the feasibility of the study. Pre test was done among adolescent students studying in higher secondary schools. The validity and accuracy of the quality of data will greatly affect the results. One of the major problems in the quality of data is the calculation and justification of sample size. Sample size calculation focus on how much data is required to make a correct decision on a particular research. The sample size could be calculated using power analysis on the basis of information obtained from the pilot study (Mac Callum, Browne & Sugawara, 1996). The researcher calculated the sample size using power analysis on the basis of information obtained from the pilot study. Based on the pilot
study, the power analysis is used with 5% level significance (p value) and 90% power using software Sigma-plot 11. The result of the analysis given in Table 4.1

Table 4.1

Sample Size Calculation

<table>
<thead>
<tr>
<th>Type of test</th>
<th>Minimum Sample</th>
<th>Maximum Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>t test</td>
<td>67</td>
<td>402</td>
</tr>
<tr>
<td>ANOVA</td>
<td>83</td>
<td>396</td>
</tr>
<tr>
<td>Chi Square</td>
<td>47</td>
<td>189</td>
</tr>
<tr>
<td>Correlation</td>
<td>123</td>
<td>387</td>
</tr>
<tr>
<td>Required Sample Size</td>
<td></td>
<td>402</td>
</tr>
</tbody>
</table>

As seen in Table 4.1, the results of the power analysis reveal that the required maximum sample size is 402. In this study, the total number of samples taken for the quantitative study is 450. The number of samples for qualitative study is 68 (15% of the samples taken for quantitative study).

4.8.4 Distribution of Samples

In the selection of the sample, due representation is given to factors like gender, type of school, course of the study and stream of study. The distribution of samples according to these extraneous variables is shown in Table 4.2.

Table 4.2

Distribution of samples

<table>
<thead>
<tr>
<th>Extraneous variables</th>
<th>Characteristics</th>
<th>No. of samples</th>
<th>Total samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Boys</td>
<td>231</td>
<td>450</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>219</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government</td>
<td>150</td>
<td>450</td>
</tr>
<tr>
<td>Type of school</td>
<td>Aided</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unaided</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Gender mix in schools</td>
<td>Single gender</td>
<td>200</td>
<td>450</td>
</tr>
<tr>
<td></td>
<td>Co educational</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humanities</td>
<td>149</td>
<td>450</td>
</tr>
<tr>
<td>Stream of study</td>
<td>Commerce</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>151</td>
<td></td>
</tr>
<tr>
<td>Year of study</td>
<td>Plus One</td>
<td>211</td>
<td>450</td>
</tr>
<tr>
<td></td>
<td>Plus Two</td>
<td>239</td>
<td></td>
</tr>
</tbody>
</table>
4.9 Methods and Tools of Data Collection

Field work was done in selected higher secondary schools across the state to get in-depth understanding of the problems and stressors faced by adolescent students. The researcher could build good rapport with many students. The researcher conducted discussions with different professionals working with children such as school principals, teachers, clinical psychologists, psychiatrists, social workers, student counsellors, spiritual advisors and personnel working in voluntary organisations for children to improve knowledge about the issues faced by the students.

Pilot study was done to assess the feasibility of the study. The researcher collected the primary and secondary data for the study. Primary data was collected by the researcher through Focus group interview, interview and group administered questionnaire. The secondary data was collected from periodicals, books, research journals, websites, and reports of national and international organisations.

For the qualitative dimension of the study, the tool for data collection is Focus group interview. Focus group interview is done among the selected students on stressors and ways of coping used by adolescent students. The validity of the tool for focus group interview was assessed by experts. For the quantitative dimension of the study, the data is collected by interview and group administered questionnaire. Interview is done to collect data on Sociodemographic details, Stressors among adolescent students and Perceived stress Scale. The questionnaire consisting of scales to assess academic stress, self esteem, coping and proactive coping were administered in classroom setting in groups of ten. The validity of the tools for data collection were assessed by experts in the field of social work, psychology and education. Pre test of the tool for data collection was done to understand the applicability of the tool, comprehension of the tool by the respondents and time taken for the administration of the tool.

- **Sociodemographic data**

This includes questions prepared by the researcher to know the sociodemographic characteristics like age, gender, course and stream of study, type of school, religion, type of family, ordinal position in family, education and occupation of parents and financial category of the family.
• **Stressors among Adolescent Students**

An open ended question requesting information on the stressors the students are facing over the past month.

• **Perceived Stress (Perceived Stress Scale [Cohen, Kamarck & Mermelstein.1983])**

The instrument Perceived Stress Scale (Cohen, Kamarck & Mermelstein.1983) assesses subjectively experienced stress independent of a specific and objective occasion. The Perceived Stress Scale (PSS) is widely used for measuring the perception of stress. It measures the degree to which situations in one’s life are appraised as stressful. The scale consists of a number of direct questions about current levels of experienced stress. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way.

In the Perceived Stress Scale, each item is rated on a 5-point scale ranging from never (0) to almost always (4). Positively worded items are reverse scored. The ratings are summed. Higher scores indicate more perceived stress. In Perceived Stress Scale, scores are obtained by reversing the scores on the four positive items: Items 4, 5, 7, and 8 are the positively stated items. 0=4, 1=3, 2=2, etc. The negative items are scored as the same value given in the response, 0=0, 1=1, 2=2 and then summing across all 10 items. Scores around 13 are considered average. Scores of 20 or higher are considered high stress.

According to Cohen (1989), psychometric properties of the Perceived Stress Scale, show reliability with alpha value 0.78. The validity of the scale is well established as the scale correlates in a predicted way with other measure of stress such as responsibilities scale and life events scales. The questions are of a general nature. The content of the scale is not specific to any sub-population group. The PSS is designed for use with community samples with at least a junior high school education. The items are easy to understand. The response alternatives are simple to grasp. Although not included as a part of research methodology, counseling was offered to all the respondents. Counseling was given to students who requested for the same.
Part 2 of the tool included scales to assess academic stress, self esteem, ways of coping and proactive coping. The questionnaire was administered in classroom setting in groups of ten. For the administration of the questionnaire, 40 minutes were taken. The doubts of the respondents regarding answering of the questionnaire were clarified individually. Care was given to avoid discussion between the respondents during the filling of the questionnaire. The different scales included in the Part 2 of the tool are explained below.

- **Academic Stress (Revised Educational Stress Scale for Adolescents. Sun, Dunne, Hou & Xu 2011)**

  Sun, Dunne, Hou & Xu (2011) developed a new instrument to measure academic stress—the Educational Stress Scale for Adolescents (ESSA). The ESSA contains five latent variables: “pressure from study, workload, worry about grades, self-expectation, and despondency”. Educational Stress Scale for Adolescents (ESSA) is comprised of 16 statements measured using 5-pointscale from 1 (strongly disagree) to 5 (strongly agree) with higher score as 80 and lower score as 16. The variables measured are pressure from study, workload, worry about grades, self-expectation, and despondency. The variable pressure from study is measured by the statements 6, 11, 4, and 5. The variable workload is measured by the statements 2, 3, and 7. The variable worry about grades is measured by the statements 8, 9, and 10. The variable self-expectation is measured by the statements 14, 15, and 16. The variable despondency is measured by the statements 1, 12, and 13. For use in this study, minor grammatical changes were made in certain statements in the original Educational Stress Scale for Adolescents (ESSA) for better clarity for the respondents.

  The authors opine that the Educational Stress Scale for Adolescents (ESSA) scores showed adequate internal consistency. The Scale scores showed 2-week test–retest reliability and satisfactory concurrent validity. This scale demonstrated good psychometric properties and is suitable to be used in further research on academic-related stress among secondary school adolescents. The ESSA promises to be a useful tool with East Asian populations and in other social and cultural contexts (Dunne, Sun, Nguyen, Truc, Loan, & Dixon, 2010).
- **Rosenberg Self-esteem Scale**

  Rosenberg Self-esteem Scale (RSE) is developed by Morris Rosenberg in 1965 for high school youth. In the scale a list of statements dealing with general feelings about one self are given. The scale is ten item Likert scales with items answered on a four point scale - from strongly agree to strongly disagree. If the respondent strongly agrees with the statement, circle SA. If respondent agree with the statement, circle A. If respondent disagree, circle D. If respondent strongly disagree, circle SD. There are no discrete cut-off points to delineate high and low self-esteem. The scale generally has high reliability. The internal consistency ranges from 0.77 to 0.88. The test-retest correlations are typically in the range of 0.82 to 0.88. Cronbach's alpha for various samples are in the range of 0.77 to 0.88 (Rosenberg, 1986). Rosenberg Self-esteem Scale (RSE) is used to assess the self esteem of students in many studies across the globe among adolescent students (Blascovich & Tomaka, 2013).

- **Ways of Coping - Brief COPE Scale (Carver, 1997).**

  The Brief COPE scale measures individual differences in coping. The purpose of the Brief COPE scale is to find out how students deal with different stressors that they have to face. In the situational version of the Brief COPE scale, subjects are asked to think about their most stressful event of the past two months. In the scale, there are twenty eight statements. The respondent is asked to read each of the statements which describe different behaviours used to cope with stress. The respondent has to decide how often, each of the behaviours are done, when feel stressed. The respondent is asked to circle one of the responses to indicate how often this is done to cope with stress. Circle 1 for Never, Circle 2 for Sometimes, Circle 3 for Often, Circle 4 for Always.

  The scale labels of the Brief COPE Scale (Carver, 1997), are “acceptance, self distraction, active coping, planning, use of instrumental support, positive reframing, religion, humor, use of emotional support, venting, denial, behavioural disengagement, self blame and substance use”. In the twenty eight statements in the Brief COPE scale, two statements are for each of the scale label. The corresponding statements for each dimension are as follows: “Self distraction- items 1 and 19; Active coping- items 2 and 7; Denial- items 3 and 8 Substance use-items 4 and 11.
;Use of emotional support- items 5 and 15; Use of instrumental support- items 10 and 23; Behavioural disengagement-items 6 and 16; Venting - items 9 and 21; Positive reframing- items 12 and 17; Planning-items 14 and 25; Humour-items 18 and 28; Acceptance- items 20 and 24; Self blame 13 and 26; Turning to religion-items 22 and 27”. Each subscale is scored separately and the score ranges from 2 to 8.

The authors theoretically have not divided the scale labels into problem-focused coping and emotion-focused coping. The authors have clearly mentioned in the scale that they do not encourage any communication regarding the further classification as problem focused coping and emotion focused coping. According to previous research studies, scale labels are grouped into various major dimensions of coping such as problem-focused, emotion-focused and avoidance coping or problem-focused and emotion-focused. In this study, the major dimensions of coping considered are problem-focused and emotion-focused coping. According to previous research studies, Problem-focused coping sub dimensions include Acceptance, active coping, planning, positive reframing, use of instrumental support. Emotion-focused coping sub dimensions are humour, religion, use of emotional support, venting, denial, self blame, self distraction, and behavioural disengagement and substance use. The authors argue that this scale is developed by a theoretically based approach. In the reliability and validity data reported by Carver (1997) the Cronbach alphas ranged from .50 to .90. The scale was found to have satisfactory psychometric properties, and evidence for validity is provided (Carver, 1997).

- **Proactive Coping Inventory for Adolescents (PCI-A)** (Greenglass, Schwarzer, & Langhi, 2008).

Proactive Coping Inventory is a multidimensional coping inventory that assess different aspects of coping used by individuals during stressful times as in anticipation of stress and difficult situations that may occur (Greenglass, Schwarzer, & Taubert, 1999). The seven subscales of Proactive Coping Inventory are “proactive coping scale, reflective coping scale, strategic planning scale, preventive coping scale, instrumental support seeking scale, emotional support seeking scale, and avoidance coping scale.” (Greenglass, Schwarzer, & Taubert, 1999). The statements and sub scales of Proactive Coping Inventory for Adolescents are same as that of the Proactive Coping Inventory.
Proactive coping scale consists of 14 items. The Reflective Coping Scale with eleven items describes various behavioural alternatives. Strategic Planning is a four item scale. The ten items in Preventive Coping Scale deals with anticipation of potential stressors and preparation before these stressors develop fully. Instrumental Support Seeking Scale (eight items) focuses on obtaining advice, information and feedback from people. Emotional Support Seeking (eight items) focus on regulating temporary emotional distress. Avoidance Coping Scale (three items) measure impending avoidance to deal with the problem. The scale consists of 53 items in all. According to PCI(A), the statements corresponding to each type of coping are Proactive Coping 1-14(2 statements negative), Reflective coping 15-25,Strategic coping 26-29,Preventive coping 30-39,Emotional support seeking 40-47, Instrumental support seeking 48-52, Avoidance coping 53-55. For use in this study, minor grammatical changes were made in certain statements in the original for better clarity.

In each scale, the given statements deal with the reactions one may have to various situations. Respondents are requested to mention how true each of these statements is, depending on how they feel about the situation. Respondents are presented with four alternatives: Not at all true, Barely true, Somewhat true, Completely true which scores 1,2,3,4 respectively.

According to the researchers who developed the Proactive Coping Inventory for Adolescents, each of the scales showed good mean item total-correlations and acceptable skewness as an indicator of symmetry around the mean. The Cronbach’s alpha of the Proactive Coping Inventory in the adolescent student samples ranges from 0.64 to 0.84. Principal Component Analysis confirmed the factorial validity and homogeneity of Proactive Coping Inventory. The subscales of Proactive Coping Inventory have good reliability and construct validity (Greenglass, 2002). The Proactive Coping Inventory is used and validated in the Indian context by Bhushan, Gautam & Greenglass, 2000).

4.9.2 Reliability of the tools for data collection

In social science research, researchers should apply measures with good reliability and validity that is appropriate in diverse populations (Abbott, 2003). An assessment of the statistical reliability is crucial before any further validation analysis.
Reliability refers to degree of dependability or consistency of the scale. Four high-quality methods for measuring reliability are Test-retest technique, multiple forms, inter-rater, Split half reliability. Internal consistency is generally estimated by using Cronbach’s alpha. An alpha value of 0.70 or above is considered to be criterion for demonstrating strong internal consistency, alpha value of 0.60 or above is considered to be significant (Cronbach & Meehl, 1955). The reliability is assessed by SPSS.

4.9.2 Scale refinement and validation

In a newly designed tool for data collection, it is very important to test the developed instruments for the consistency and viability (Van Saane, Sluiter, Verbeek & Frings-Dresen, 2003). The tool for data collection has to satisfy the scale refinement and validation. Validity is the most critical evaluation and indicates the degree to which instrument measures, what it is believed to measure. Content validity, construct validity and face validity are the major types of validity (Berelson, 1952).

4.9.2.1 Content validity

Content validity is a non-statistical type of validity that involves the extent to which a measuring instrument provides adequate coverage of the topic under study. It is determined by using a panel of persons who shall judge how well the measuring instruments meet the standard, but there is no numerical way to express it. The researcher consulted professionals in the field of psychology and social work for assessment of content validity and ensured that the tool prepared for data collection has sufficient content validity.

4.9.2.2 Face validity

Face validity is an estimate of whether the test appears to measure a certain criterion. But it does not assure that the test actually measures the phenomena in that domain and is very close to content validity. Face validity focus on to whether the test appears to be a good measure. The content validity focus on theoretical basis of assumption, that the test assesses all the domains of a certain criterion (Haynes, Richard, & Kubany, 1995). This judgment is made on the face of the test, thus it can also be judged by the experts in the field of the study. The researcher consulted various experts in the field of social work and psychology and ensured that the tool prepared for the study has sufficient face validity.
4.9.2.3 Construct validity

One of the approaches to the construct validity is convergent validity. Constructs are theoretical or unobserved (latent variables or factors). Convergent validity refers to the degree to which a measure is correlated with other measures that is theoretically predicted with. It is estimated by comparing it to the measure of the same concept developed through other methods to assess how the items are correlated. This involves empirical and theoretical support for the interpretation of the construct (Bagozzi, Yi, & Phillips, 1991). Each item in the scale is treated as different approach to measure the construct.

4.9.2.3.1 Confirmatory Factor Analysis

Development of psychometrically sound measures is an expensive and time consuming process. Researchers often do not have the time or resources to develop a new measure, they have to use existing measures (Greeno, Hughes, Hayward, & Parker, 2007). However, while using existing measure, it is important to examine whether the measure is appropriate for the population included in the study. In these circumstances, Confirmatory Factor Analysis (CFA) can be used to examine whether the original structure of the measure works fit in the population thus tests the specific aspect of validity (Harington, 2009). A fundamental feature of CFA is its hypothesis-driven nature. In Confirmatory Factor Analysis (CFA), the researcher specifies the number of factors and the pattern of indicator factor loading in advance. It is applied for four major purposes namely, psychometric evaluation of measures, construct validation, testing method effects and testing measurement in variance across groups or population (Brown, 2006).

Confirmatory Factor Analysis is used to explore the relationships between independent and moderating variables and to describe the construct of the theoretical framework. This is done using the software AMOS (Arbuckle, 2005). CFA focuses on the relationship between observed measures or indicators (test items, test scores), and latent variables or factors. CFA deals specifically with measurement models. Structural Equation Model (SEM) includes the structural model or casual path among the latent variables. Thus it provides a quantitative method for testing substantive theories (Raykov & Marcoulidus, 2006).
In the Confirmatory Factor Analysis, first a theoretically supported model is developed for each factor, a path diagram of casual relationships is constructed and, the parameter estimated in the model are examined based on the Goodness of fit measures available in AMOS output (Byrnes, 2006). By using CFA each item in the scale is checked with the help of coefficient called bentler- bonett fit index (in this study, Tucker-Lewis Index, TLI). A scale with TLI value of 0.9 or above is an indication of strong convergent validity of the instrument (Siebert & Siebert, 2005). In this study, it is found that all the indices are greater than 0.90 indicating high convergent validity.

4.9.3.2 Structural Equation Model

By using Structural Equation Model (SEM), a variety of indices are used to measure the model fit. In addition to the ratio of the \( \chi^2 \) statistic to its degree of freedom, with a value less than 5 indicating acceptable fit. According to Kline (2005), researchers recommend a handful of fit indices to assess model fit. These are the Goodness of Fit Index (GFI), Adjusted Goodness of fit (AGFI), Normed Fit Index (NFI), Standardized Root Mean Residual (SRMR), and the Comparative Fit Index (CFI). According to the usual procedures, the Goodness of fit is assessed by checking the statistical and substantive validity of estimates, the convergence of the estimation procedure, the empirical identification of the model, the statistical significance of the parameters, and the Goodness of fit to the covariance matrix. Since complex models are inevitably mis specified to a certain extent, the standard \( \chi^2 \) test of the hypothesis is perfect fit to the population. Covariance matrix is given less importance than measures of the degree of approximation between the model and the population covariance matrix. The Root Mean Squared Error of Approximation (RMSEA) is selected as such a measure (Gignac, 2006).

The measures of ‘Goodness of fit’ followed in this research are: Absolute fit measures, Incremental fit measures and Parsimonious fit measures.

Absolute fit measures-Likelihood ratio Chi-square statistic (p): usually greater than 0.05 or 0.01 is the level of acceptable fit. Goodness of fit index (GFI): higher values closure to 1.0, indicates better fit. Root mean square error of approximation (RMSEA): values ranging from .05 to 0.08 are acceptable. Root mean square residual: smaller values are better. Incremental fit measures-Tucker-Lewis Index
(TLI): A recommended value of TLI is 0.09 or greater. The value closure to 1.0 indicates perfect fit. Normal fit Index (NFI): A recommended value of NFI is 0.09 or greater. The value close to 1.0 indicates perfect fit. Adjusted Goodness of fit index (AGFI): A recommended value of AGFI is 0.09 or greater. The value closure to 1.0 indicates perfect fit. Parsimonious fit measures-Normal Chi-square (CMIN/DF): Lower limit 1.0 and upper limit2.0/3.0. Parsimonious Goodness-of-fit index (PGFI): the value closure to 1.0 indicates perfect fit (Thompson, 2004).

Correlation and Multiple regressions could be applied to explore the association between independent and moderating factors (Cohen, Cohen, West, & Aiken, 2003). A conclusion is reached about the final model of each factor and their relationships by considering the above values. Correlation is applied to investigate the relationships among the factors of independent and moderating variables. Multiple regressions are also applied to explore the association between independent and moderating factors.

4.10 Data Analysis

4.10.1Data Analysis- Qualitative and Quantitative Dimension of the Study

The data regarding the stressors and ways of coping were collected both quantitatively and qualitatively. The study use both qualitative and quantitative techniques for the analysis of data. Qualitative Data Analysis was done by thematic coding. Quantitative Data Analysis is done with the help of Statistical Package of Social Sciences (SPSS). The quantitative data regarding Academic Stress, Perceived Stress, Self esteem, Ways of Coping and Proactive Coping are analysed and interpreted. The statistical analysis is comprised of two stages. The first stage examined the descriptive statistics of the measurement items and assessed the reliability and validity of the measure applied in this study. The mean, standard deviation, percentage and frequencies were first calculated to get the initial reaction of the respondents to each item in the questionnaire. Mean, Median and Standard deviation, Skewness and Kurtosis were the main measures which describes the data. Thus all the items were analyzed using descriptive statistics. Other measures used were: Mean Percentage Score, Coefficient of variation, Correlation (Pearson correlation), One Sample z test, Two Sample z test and One-Way ANOVA.
4.10.2 Data Analysis- Mixed methodology

Leech and Onwueguzie (2009) presented a three dimensional topology based on time orientation (concurrent verses sequential); the emphasis of approaches, (partially mixed or fully mixed) and weighting. Timing refers to the sequence of the data analysis (Creswell & Plano Clark, 2007). This can occur either concurrently or sequentially (Morse, 1991). Weighting refers to the importance or emphasis given to the two forms of the data within the study (Creswell & Plano Clark, 2007). Morgan (1998) refers weighting as the priority decision. Priority can be given to one form over the other, or both forms of data can be weighed so that they play an equally important role in the study. In the mixed research design, the researcher must consider how to mix the two different types of data sets.

In the current study, the data regarding the stressors and ways of coping were collected both quantitatively and qualitatively. The qualitative data and quantitative data were collected concurrently. The sequence of the data analysis is concurrent. In the study, on the data regarding the stressors and ways of coping, equal importance or emphasis is given to both qualitative and quantitative data. The researcher has attempted to fully mix the data on stressors and Ways of Coping among adolescent students. The data regarding the stressors and ways of coping is connected at the interpretation stage though description. Hence the mixed methodology of the triangulation model in this study is denoted as QUAL + QUAN.

4.11 Ethical Considerations

Research ethics concern the acquiring and dissemination of trustworthy information in ways that cause no harm to the study participants. Ethical considerations help to legitimise research and render it credible. Ethical considerations also regulate the research study by setting limits and directions for what can, cannot and should not be done. For social work research, the guidelines given in the NASW Code of Ethics regarding the ethical responsibilities to the social work profession in the field of Evaluation and research acts as a directive in choosing the ethical considerations. Due importance for the guidelines for social work in the NASW Code of Ethics is given in this research. The ethical aspects considered in this research are explained in detail in the following paragraph.
The wellbeing, privacy and dignity of the participants were given due regard. The participants are assured of the confidentiality. The data was collected without disrupting the normal school routine. The data was collected from the students at the time granted by the school authorities, so that no academic activities are lost for the respondents. Thus participants of the research were protected from unwarranted physical or mental distress, harm, danger or deprivation of absence from the academic activities.

Ethical aspects require special mention from collecting the data from children. The children are at the centre of the process of investigation; hence due respect is to be given to their opinions and views. The issue of the power imbalance between the researcher and the children should be handled diligently. One way of equalising the power imbalance was to give children control over the decision to participate in the study. The respondents were informed of their right to withdraw from research at any time without having to give any reason and without facing any consequences for doing so or giving any penalty.

As the respondents from the same school knew each other, clear ground rules about sharing of the information was very important to ensure the confidentiality and true sharing of information especially in the qualitative study. The ground rules were not imposed on to the children. The suggestions of the children regarding the ground rules were also given due consideration. Everyone agreed not to discuss the shared information among themselves or with anybody else outside the research study. Confidentiality measures also included preventing teachers and other non research personnel being near to the respondents during the qualitative and quantitative data collection. Informed consent is taken from the respondents of the study. Informed consent included information about the purpose of the study, nature, extent and duration of the participation requested. A signature and date by both the participant and researcher were documented. The rationale behind this requisite is that they systematically ensure subject’s voluntary participation and provide evidence for the same.

The risks and benefits of participation in the research study were disclosed to the participants. The anticipated use of the data and expected outcome of the study was explained in detail. The respondents were given sufficient time to read and understand the relevant forms before putting their signatures. They were also
requested to clarify their doubts regarding the research study and their role in the study. There is no undue inducement to participate in the study. No implied or actual deprivation or penalty for refusal to participate in the study.

Respondents were instructed not to put any identifying information on the response sheets. The schedule and questionnaire carried a unique identification number for each respondent. The name and contact details were asked only from the students who requested counselling. The researcher ensured that the respondents of the study have access to supportive services. The evaluation and research findings are reported in the research study accurately. The purpose of the study and its expected outcome were explained to the Principal and staff members and parent teacher association office bearers. The consent of the Principal and Parent Teacher Association office bearer was sought for permission to conduct the study. Assurance on minimal schoolwork disruption was also given to them. Anonymity was assured to the schools who participated in the study. In order to safeguard the anonymity and confidentiality, the names of the participating educational institutions and the respondents are not stated in the research report. Assurance was given that the data collected would be used only for professional academic research purposes and would discuss the collected information only with people professionally concerned with this information.

4.12 Chapterisation

Research Report is organised in seven chapters.

Chapter 1- Introduction
Chapter 2- Stress and Coping among Adolescents: Conceptual and Theoretical Overview
Chapter 3- Studies on Stress and Coping among Adolescent Students
Chapter 4- Research Methodology
Chapter 5- Qualitative study – Analysis and Interpretation
Chapter 6- Quantitative study – Analysis and Interpretation
Chapter 7- Findings, Suggestions, Implications and Conclusion
Bibliography
Appendix.
4.13 Conclusion

The chapter gives an overall picture of the methodology employed by the researcher for the study. In this chapter, the general objectives of the study, specific objectives of the qualitative and quantitative study are stated. The conceptual and operational definitions of the variables under study are mentioned. The research design and sampling design are described in detail. The methods and tools of data collection used in the study are explained. The methods of data analysis and ethical considerations are listed. The schema of the chapters of the thesis is stated. The next chapter deals with the qualitative study. The data collection, analysis and interpretation of the qualitative study is described in detail in the next chapter.