METHODOLOGY
CHAPTER - III

METHOD

This chapter includes a description of:

(A) Sample
(B) Measures
(C) Administration of Tests
(D) Scoring of Tests
(E) Analysis

(A) SAMPLE

The sample consisted of adolescents who were attending Secondary and Senior Secondary Public Schools in Chandigarh (India). The final sample comprised of 110 males and 110 females between the ages of 15 and 17 years. All participants were staying with their families. Majority of the participants belonged to middle socio-economic status.

The variables of marital status, educational status, employment status and place of residence were controlled in the sense that adolescents were unmarried, unemployed, and belonged to urban area. It is significant to emphasize that in addition to the advantage of homogeneity which resulted from this type of control, there is also an increased danger of bias. However, this type of control is appropriate from the viewpoint of the focal theme of the present study. The participants to be included in this study were also required to be showing:

a) No evidence of drug addiction or alcoholism, and
b) Not currently in treatment for diagnosed psychiatric disorder.
The following measures were employed to test various hypotheses:

(A) Measures of Loneliness
a) Revised UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980).

(B) Measures of Cognitive Dysfunction
a) Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974).
b) Automatic Thoughts Questionnaire (Hollon & Kendall, 1980).

(C) Measures of Depressive Symptoms
Zung Self-Rating Depression Scale (Zung, 1965).

(D) Measures of Social Support
Social Support Questionnaire (Sarason, Levine, Basham, & Sarason, 1983)

(E) Measure of Family Environment
Family Environment Scale (Moos & Moos, 1994)

(F) Measures of Locus of Control
Internal – External Scale (Rotter, 1966)

(G) Measure of Anxiety
IPAT Anxiety Scale Questionnaire (Cattell & Scheier, 1963)

(A) Measures of Loneliness: Recent treatment of loneliness (Weiss, 1987) has focussed on the need for theoretically derived measurement instruments which address the multidimensional nature of loneliness. Currently, the majority of loneliness measures fall within one of two general conceptual approaches. Most have evolved from a
‘unidimensional’ construct of loneliness. This perspective views loneliness as a unitary phenomenon which varies in experienced frequency or intensity (Russell, 1982). Within this view there is a fundamental commonality in the experience of loneliness regardless of cause. The revised UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980), perhaps the most frequently used loneliness scale, falls within this category, as do measures developed by Paloutzian & Ellison (1982), Young (1982), Belchar (1973).

In contrast, the multidimensional perspective views loneliness as a multifaceted phenomenon which cannot be captured by a single global measure (Russell, 1982). This conceptualization promotes the differentiation of various hypothesized typologies of loneliness. From this viewpoint, the loneliness experienced by the college student away from home for the first time may be qualitatively different from the experience of a person who has lost a spouse (Schmidt & Sermat, 1983; DeJong-Gierveld & Raadschelders, 1982; Weiss, 1973).

One of the proposed typologies of loneliness which has received attention is Weiss (1973) distinction between the loneliness of social isolation (social loneliness) and that of emotional isolation (emotional loneliness). Measures that are based on Weiss’ formulation have been developed for children. Asher, Hyme, & Renshaw (1984) have developed a measure for children which appear to assess what Weiss has described as social loneliness. Complementing this scale, Heinlin & Spinner (1985) have devised a measure specifically aimed at assessing emotional loneliness in children. In adult populations, work by Russell, Cutrona, Ross, & Yurko (1984), and Rubenstein & Shaver (1982), supports the notion that emotional loneliness and social loneliness are distinct states. Rubenstein & Shaver (1982), in examining people’s feelings associated with loneliness, found that two of their ‘feelings’ factors corresponded closely to Weiss notion of

1. Social loneliness results from an inadequate social network.
2. Emotional loneliness stems from the absence of a close emotional attachment relationship.
emotional and social loneliness. Similarly, two of their factors associated with reasons for being lonely, also reflected emotional and social loneliness. This prompted them to conclude that “the prominence of these dimensions in our data is strong evidence of their validity and a sign that separate scales could be constructed to measure emotional and social isolation” (p.219).

In the light of above discussion, the present study included in its purview the following unidimensional measure of loneliness.

a) **The Revised UCLA Loneliness Scale (UCLA-LS: Russell, Peplau, & Cutrona, 1980)**

The revised UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980) is a 20 item instrument designed to measure self-reported experiences and behaviours theoretically related to loneliness including perceived aloneness, social isolation, and disturbed interpersonal relationships (Russell, 1982). In order to decrease response bias the revised loneliness scale includes 10 positively worded items and 10 negatively worded items instead of all 20 of the items being worded in the same (“Lonely”) direction as they were in the original loneliness scale (Russell, Peplau, & Ferguson, 1978). The revised loneliness scale yields a single score reflecting the self-report of current loneliness (Russell, Peplau, & Cutrona, 1980). The higher the score, the more loneliness reported. Typical items include: “I lack companionship”, “I am unhappy being so withdrawn”. Respondents indicate on a 4 point scale ranging from never (1) to often (4), how often each statement is true for them. The total score is the sum of all 20 items after having reversed the scoring of positively worded items. The higher the score on the loneliness scale, the higher the assessment of loneliness. Russell et al. (1980) and Russell (1982) reported good reliability (rtt > .90) and evidence of validity for the revised UCLA Loneliness Scale.
Another study (Upmanyu et al., 1993) with a sample of adolescents reported Cronbach alpha to be equal to .90. Validation studies have demonstrated that UCLA scale has very high concurrent and discriminant validity. Concurrent validity for the new measure was indicated by demonstrating that lonely people report experiencing emotions unrelated to loneliness. Lonely individuals also report more limited social activities and relationships. Discriminant validity for revised loneliness scale was indicated by the evidence that scores on the scale were not confounded by social desirability. Scores on the scale were also found to correlate more highly with other measures of loneliness than with other measures of psychopathology (Upmanyu, Upmanyu, & Dhingra, 1992). The revised UCLA loneliness scale has also been used in a large number of researches in India (Upmanyu, Upmanyu, & Bhardwaj, 1994; Upmanyu, Upmanyu, & Dhingra, 1992, 1993). The psychometric characteristics have been well documented.

In summary, there is a large literature using the revised UCLA loneliness scale and documenting its usefulness, validity, reliability, and its centrality in the measurement armamentarium for researchers interested in examining different facets of loneliness feelings.

(B) Measures of Cognitive Dysfunction

a) Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974)

Considerable work in recent years has focussed on the importance of hopelessness in a variety of psychopathological conditions. The major cognitive theories of depression, the reformulated learned helplessness theory (Abramson, Seligman, & Teasdale, 1978) and Beck’s (1967, 1976) cognitive model, emphasize the importance about the future in the aetiology, maintenance and treatment of depression. Empirical research has demonstrated that depressed individuals endorse hopeless statements about the future more than do non-depressed individuals (e.g., Minkoff, Bergman,
Beck, & Beck, 1973). Thus, hopelessness has been identified as one of the core characteristics of depression and has been implicated in a variety of other conditions such as suicide, schizophrenia, alcoholism and physical illness.

Although a number of measures of attitudes toward the future have been developed, they have not been designed to quantify hopelessness specifically (Gunn & Pearman, 1970; Bezies, Fonte, & Fawcett, 1970; Crumbaugh & Maholick, 1969). In order to facilitate the study of hopelessness in various psychopathological conditions, Beck constructed an instrument designed to reflect the respondent's negative expectancies.

Two sources were utilized in selecting items for the 20 – item true/false Hopelessness scale (HS). Nine items were selected from a test of attitudes about the future structured in a semantic differential format. These items were then revised to make them appropriate for the present test. The remaining 11 items were drawn from a pool of pessimistic statements made by psychiatric patients who were adjudged by clinicians to appear hopeless. Those statements were selected which seemed to reflect different facets of the spectrum of negative attitudes about the future and which recurred frequently in the patients verbalization.

The final format consisted of 20 true/false statements of which 9 were keyed false and 11 were keyed true. For every statement, each response was assigned a score of 0 or 1, and total “hopelessness score” was the sum of the scores on the individual items. Thus, the possible range of scores was from 0 to 20. This measure has been evaluated in a number of studies (Upmanyu & Reen, 1991) and has been found to be reliable, sensitive, and easily administered.
b) **Automatic Thoughts Questionnaire (ATQ: Hollon & Kendall, 1980)**

The Automatic Thoughts Questionnaire is a measure of negative automatic thoughts. The respondents rate on a 5-point scale how often they have experienced 30 depression related cognitions during the past month.

Example of typical items included in ATQ are:

1. I am no good.
2. My life is a mess.
3. I am a failure.
4. I am worthless.
5. My future is bleak.
6. It's just not worth it.
7. I feel so helpless.
8. I can't finish anything.

Scores on the 30 items are summed to give total score for ATQ negative. It yields a score ranging from 30 to 150, with higher scores indicating more frequent negative thoughts. To assess criterion validity, the scores on the Automatic Thoughts Questionnaire were correlated with the scores on Beck Depression Inventory and the Minnesota Multiphasic Personality Inventory-Depression Scale. The Pearson correlations ranged from .45 to .70 in a sample of 348 college students. High internal reliability and correlation with severity of depression were also found in investigations by Dobson & Breiter (1983), and Harrell & Ryan (1983). Thus the ATQ was the most sensitive measure related to level of depression.

The questionnaire has been shown to differentiate depressed
and non-depressed samples (Dobson & Breiter, 1983) and to have greater specificity to depression than the dysfunctional Attitude Scale (Hollon, Kendall, & Lumry, 1986). The questionnaire has also been used in Indian set up and demonstrated to possess adequate psychometric characteristics (Upmanyu & Reen, 1991).

C. Measure of Depressive Symptoms (Zung Self-Rating Depression) Scale (Zung, 1965)

Zung Self–Rating Depression Scale is intended to map complex behavioural changes, cognitive processes and their affective concomitants. The scale is said to be an excellent checklist of some twenty most common complaints comprising the modern concept of depression (Farby, 1980). Content analysis of various depression measurements suggests that the ZSDS covers five of the nine Diagnostic and Statistical Manual of Mental Disorders (DSM-III, American Psychiatric Association, 1980) depressive symptoms completely, whereas four are partially covered.

Zung Self–rating Depression Scale was selected because it is widely used for quantifying symptoms of depression and it is designed as a sample scale which the patients and normals are supposed to complete without assistance. The 20–items scale covers affective, psychological, and somatic features. Of the 20–items used 10 are worded symptomatically positive and ten symptomatically negative. The scale appears well balanced with equal number of positive and negative statements. The items were worded in a positive as well as negative direction in order to break any tendency towards response set. The maximum contributions of behavioral and somatic features to the full scale are 50 percent (items 2 to 10, 13). To the extent, the Zung Self-rating Scale matches the Hamilton Rating Scale for Depression (HRS) more closely than does the BDI for which the corresponding figures are 33 percent and 38 percent respectively. Hamilton (1969) has commented that the ZSRS “is
likely to have many uses because it is short and not difficult to fill in”. Its brevity is reflected by the restricted range of items: thus the symptoms guilt, retardation, hypochondriasis, and loss of insight is not included. Some of the important symptoms covered by ZSRS refer to: suicide (item no. 19), insomnia (item no. 4), work and interest (item no. 8, 20), agitation (item no. 13), psychological anxiety (item no. 15), somatic anxiety (item no. 9), gut symptoms (item no. 5, 8), general somatic (item no. 10, 12), weight loss (item no. 7), depression (item no. 1, 3, 14, 17) etc. The maximum contribution of behavioral and somatic features to the full scale is 50 percent (item 2 to 10, 13).

A brief description of the 20 depressive symptoms is given below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sadness</td>
</tr>
<tr>
<td>2</td>
<td>Diurnal Variation</td>
</tr>
<tr>
<td>3</td>
<td>Spells of crying</td>
</tr>
<tr>
<td>4</td>
<td>Sleep disturbance</td>
</tr>
<tr>
<td>5</td>
<td>Anorexia</td>
</tr>
<tr>
<td>6</td>
<td>Loss of libido</td>
</tr>
<tr>
<td>7</td>
<td>Weight loss</td>
</tr>
<tr>
<td>8</td>
<td>Constipation</td>
</tr>
<tr>
<td>9</td>
<td>Tachycardia</td>
</tr>
<tr>
<td>10</td>
<td>Fatigability</td>
</tr>
<tr>
<td>11</td>
<td>Loss of concentration</td>
</tr>
<tr>
<td>12</td>
<td>Psycho motor retardation</td>
</tr>
<tr>
<td>13</td>
<td>Psycho motor agitation</td>
</tr>
<tr>
<td>14</td>
<td>Hopelessness</td>
</tr>
<tr>
<td>15</td>
<td>Indecisiveness</td>
</tr>
<tr>
<td>16</td>
<td>Irritability</td>
</tr>
<tr>
<td>17</td>
<td>Self- Deprecation</td>
</tr>
<tr>
<td>18</td>
<td>Emptiness</td>
</tr>
<tr>
<td>19</td>
<td>Suicidal Thought</td>
</tr>
<tr>
<td>20</td>
<td>Dissatisfaction</td>
</tr>
</tbody>
</table>
The subject indicates the frequency with which he experiences the symptom or feeling described (i.e., a little, some, good part, or most of the time), with numerical values ranging from 1 to 4 for positive statements and 4 to 1 for negatively worded items, respectively. The maximum possible ZSRS score is 80, while a score of 20 indicates the complete absence of depressive symptoms. The raw score may be converted to a percentage of the maximum possible score; the result is termed the ZSRS index and is obtained by multiplying the raw score by a factor of 1.25. Carrol, Fielding, & Blashki (1973) remarked that there does not appear to be any real purpose served by this procedure. In the present study only the total scores on 20 items have been used.

The author has extensively documented psychometric properties of the scale. A number of other authors, especially TankaMatsumi & Kameoka (1986), Gabrys & Peters (1985), and Schaefer et al., (1985) have also found that the scale possesses adequate psychometric characteristics.

In an extensive study, Gabrys & Peters (1985) reported alpha coefficient of 0.91 for 282 family escorts, 0.88 for 369 depressed clients, 0.93 for 218 non-depressed clients. A split-half (odd–even) reliability coefficient of 0.94 (corrected for length) was found for a total of 869 depression checklists. The authors concluded that the findings support the scale’s reliability by judge or self-report and the predictive and discriminant validities with functionally diverse groups. Another study (Tanaka-Matsumi & Kameoka, 1986) reported Cronbach alpha coefficient of 0.81 for a sample of 391 normal college students. The author also found evidence for convergent validity but the discriminant validity was not clearly demonstrable, as pairs of anxiety and depression scores correlated strongly.

Another study (Schaefer et al, 1985) estimated the internal consistencies of Zung Self-rating Depression Scale by computing
alpha coefficients. The Zung alphas were 0.90 (psychiatric ward) and 0.86 (chemical dependency ward). The authors found that the results favour the Zung over the MMPI - D Scale, and to a lesser degree, the BDI as a measure of depressive symptomatology in men.

Some studies (Mayer, 1977; Goodstein, 1975) have questioned that validity of the Zung Self-rating Depression Scale. Goodstein (1975, p.538) pointed out that the ZSDS is a psychometrically crude instrument and should not be used to measure depression. Carroll et al. (1973) also found that the scale is insensitive to various levels of depression severity. Yanagida & Marsella (1978) pointed out that claims supporting the reliability and validity of the Zung's Self-Rating Depression scale can only be regarded with skepticism.

The problem of the specificity of various self-report instruments, particularly with regard to the distinction between anxiety and depression has attracted the attention of a number of authors. Zung has addressed himself to this question and claims that the scale can distinguish depressive reactions from other personality disorders. This concern with specificity becomes important only when one attempts to use the scales as diagnostic instruments, a purpose for which they were never intended (Carroll, Fielding, & Balashki, 1973).

Despite these concerns Zung Self-rating Depression Scale has been extensively used by researchers for measuring depressive symptoms or tendencies. Keeping in view its extensive use, the scale has been used in this study.

(D) Social Support Questionnaire (SSQ : Sarason, Levine, Basham, & Sarason, 1983).

Social Support Questionnaire (SSQ) developed by Sarason, Levine, Basham, & Sarason, (1983) consists of 27 items. Each of the 27 items asks a question to which a two - part answer is requested. The item asks the subject (a) to list the people to whom they can turn
and on whom they can rely in given sets of circumstances, and (b) indicate how satisfied they are with these supports on a 6-point Likert scale (very satisfied, fairly satisfied, a little satisfied, a little dissatisfied, fairly dissatisfied, very dissatisfied). The SSQ yields two scores: (a) perceived availability of the number of supportive persons listed (SSQ-N), and satisfaction with available support (SSQ-S). The number (N) score for each item of the SSQ is the number of support persons listed. The social support available to deal with given problem is rated on a scale ranging from “very satisfied” to “very dissatisfied”. This yields a satisfaction score (S) score for each item that ranges between 1 and 6.

The Social Support Questionnaire has been found to have a number of desirable psychometric properties. It was found to have (a) stability over a 4-week period of time, and (b) high internal consistency among items.

The authors concluded that the modest correlation between SSQ-N and SSQ-S provides a strong basis for analyzing social support into its components. The perceived availability of support reflected by the SSQ-N score, and the satisfaction with the support that is available, reflected by the SSQ-S score, each appear to be worthy of study and analysis.

More recently, Kumari & Sharma (1990) concluded that very high SSQ-N/SSQ-S correlation in Indian culture raises some doubt about the cross-cultural generalizability. Sarason et al.(1983) claim that social support is not a unitary concept when assessed by the SSQ, and the perceived availability of support and satisfaction with the support that is available are worthy of study and analysis.

The authors further concluded that factor analysis of the two SSQ scales in Indian and other Asian cultures will, however, be desirable before a firm statement on this issue can be made. Despite these concerns which are significant, it can be stated that SSQ is
useful tool for research aiming at examining the role of social support.

(E) **Family Environment Scale (Moos & Moos, 1994)**

The Family Environment Scale - III (1994) is a 90 item true/false questionnaire composed of 10 subscales that measure the actual, preferred and expected social environment of families. The 10 FES subscales assess three underlying sets of dimensions: relationship dimension, personal growth dimension, and system maintenance dimension. The relationship and system maintenance dimensions primarily reflect internal family functioning, whereas personal growth dimensions primarily reflect the linkages between the family and the larger social context. Additionally, three separate forms of the FES are available that correspondingly measure different aspects of these dimensions. The Real Form (Form R) measures people’s perceptions of their actual family environments, the Ideal Form (Form I) rewords items to assess individuals’ perceptions of their ideal family environment, and the Expectations Form (Form E) instructs respondents to indicate what they expect a family environment will be like under, for example, anticipated family changes.

The family environment scale is designed to give three kind of possible scores which are as follows:

a. Scores for each of these 10 subscales are computed to create an overall profile of family environment. Based on these scores, families are then grouped into one of three family environment typologies based on their most salient characteristics.

b. Family incongruence score

c. Two summary indices can be calculated from the combination of FES subscales: 1) The Family Relationships Index – it is sum of cohesion, expressiveness, and conflict (reversed) scales.

2) The Family Social Integration Index – it is the sum of

In the present study scores on 10 subscales of Form (R) measuring subjects's perception of their current family environment were used.

### Table – FES Subscales and Descriptions

<table>
<thead>
<tr>
<th>Relationship Dimensions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cohesion</td>
<td>the degree of commitment, help and support family members provide for one another.</td>
</tr>
<tr>
<td>2. Expressiveness</td>
<td>the extent to which family members are encouraged to express their feelings directly.</td>
</tr>
<tr>
<td>3. Conflict</td>
<td>the amount of openly expressed anger and conflict among family members.</td>
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<table>
<thead>
<tr>
<th>Personal Growth Dimensions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Independence Orientation</td>
<td>The extent to which family members are assertive, are self-sufficient, and make their own decisions.</td>
</tr>
<tr>
<td>5. Achievement Orientation</td>
<td>how much activities (such as school and work) are cast into an Orientation achievement-oriented or competitive framework</td>
</tr>
<tr>
<td>6. Intellectual-Cultural Orientation</td>
<td>the level of interest in political, intellectual, and cultural activities orientation</td>
</tr>
<tr>
<td>7. Active-Recreational Orientation</td>
<td>the amount of participation in social and recreational activities orientation</td>
</tr>
<tr>
<td>8. Moral-Religious Emphasis</td>
<td>the emphasis on ethical and religious issues and values.</td>
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<table>
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<tr>
<th>System Maintenance Dimensions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Organization</td>
<td>the degree of importance of clear organization and structure in planning family activities and responsibilities.</td>
</tr>
<tr>
<td>10. Control</td>
<td>how much set rules and procedures are used to run family life.</td>
</tr>
</tbody>
</table>
The FES-III generally has strong psychometric properties. Test-retest reliability is acceptable with correlations as high as .86 over a four month period (Moos & Moos, 1994). Intercorrelations among these 10 subscales range from -.53 to .45. Test-retest reliabilities for the Form R subscales for 2-month, 3-month, and 12-month intervals range from .52 to .91. The FES has been criticized for its internal consistency, which ranges from .61 to .78 (Roosa & Beals, 1990). Although this is lower than some other well developed scales, Sanford, Bingham, and Zucker (1999) have judged it to be acceptable given that the FES-III aims for each construct to measure a broad array of behaviour.

**Table Showing Form R Internal consistencies, Corrected Average Item – Subscale Correlations, and 2-Month and 4-Month Test-Retest Reliabilities.**

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Internal Consistency (N=1,067)</th>
<th>Corrected Average Item – Subscale Correlation (N=1,037) Correlations (N=1,067)</th>
<th>2-Month Test-Retest Reliability (N=47)</th>
<th>4-Month Subscale Stability (N=35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohesion</td>
<td>.78</td>
<td>.44</td>
<td>.86</td>
<td>.72</td>
</tr>
<tr>
<td>Expressiveness</td>
<td>.69</td>
<td>.34</td>
<td>.73</td>
<td>.70</td>
</tr>
<tr>
<td>Conflict</td>
<td>.75</td>
<td>.43</td>
<td>.85</td>
<td>.66</td>
</tr>
<tr>
<td>Independence</td>
<td>.61</td>
<td>.27</td>
<td>.68</td>
<td>.54</td>
</tr>
<tr>
<td>Achievement Orientation</td>
<td>.64</td>
<td>.32</td>
<td>.74</td>
<td>.66</td>
</tr>
<tr>
<td>Intellectual-Cultural Orientation</td>
<td>.78</td>
<td>.44</td>
<td>.82</td>
<td>.86</td>
</tr>
<tr>
<td>Active-Recreational orientation</td>
<td>.67</td>
<td>.33</td>
<td>.77</td>
<td>.83</td>
</tr>
<tr>
<td>Moral-Religious Emphasis</td>
<td>.78</td>
<td>.43</td>
<td>.80</td>
<td>.91</td>
</tr>
<tr>
<td>Organization</td>
<td>.76</td>
<td>.42</td>
<td>.76</td>
<td>.73</td>
</tr>
<tr>
<td>Control</td>
<td>.67</td>
<td>.34</td>
<td>.77</td>
<td>.78</td>
</tr>
</tbody>
</table>

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The greatest strength of the FES-III is said to be its content validity which is based on sound theory (Bagarazzzi, 1984). Concurrent and predictive validity of FES-III has been confirmed by many research studies. For example, relationships have been found among FES-III scores and the presence of major depression, conduct disorder, ADHD, ODD, PTSD, Dysthymia disorder and alcoholics (Hallorum, Ross, & Carey, 2002).

A number of investigators have examined the factor structure of the FES. Factor analyses of the FES and its derivates have resulted in two factor solutions (Canavan, 1989; Woodall & Matthews, 1989; Oliver, Handal, Enos, & May, 1988; Plomin & Defries, 1985; Boake &

FES subscales combine somewhat consistently to load on specific factors; however, researchers found some variation even when they identified the same number of factors. For example, Gondoli & Jacob (1993), Kronenberger & Thompson (1990), and Oliver, May, & Handal (1988) each obtained three factor solutions, but each differed somewhat from the other two. Oliver and colleagues also conducted factor analysis based on FES items and subscale scores obtained from a sample of high school youth (Oliver, Handal, Enos, & May, 1988).

More generally, the 10 FES subscales reflect meaningful and conceptually distinct aspects of family environment and there is a vast amount of literature supporting its psychometric properties. Keeping in view its extensive use it had been used in the present study.

(F) Internal – External Scale (Rotter, 1966)

The classic formulation of the locus of control variable by Julian Rotter (Rotter, 1966) hypothesized general expectancies regarding the casual relationship between one’s own behavior and consequences that might affect a variety of behavioral choices in a large number of situations. The most researched of these general expectancies is external-internal locus of control.
Rotter (1954) developed the internal-external scale to measure the generalized expectancies for internal and external control of reinforcement. Rotter's scale consists of 23 items and 6 additional buffer items in a forced choice format covering a broad variety of situations. A low score implies an internal locus of control and a high score, an external locus of control. The scale has been extensively used by the researchers interested in measuring the I-E construct.

Reported test-retest reliabilities range from 0.49 to 0.61 for two months and 0.60 to 0.83 for one month intervals (Rotter, 1966). Cronbach alpha reliability for samples of 50 to 250 college females ranged from 0.70 to 0.76. A number of test-retest correlations within the above range for similar time spans, and for widely differing groups have appeared in the literature (Dua, 1970; Harrow & Ferrante, 1969; Hersch & Scheibe, 1967).

Andrisani & Nestel (1976) reported a stability coefficient of .55 for a large sample after a lapse of two years on a shortened version of the scale. Layton (1985) found test-retest correlation of 0.57 for the school group (N: 186) and another of 0.53 for 101 men aged 17 to 62 years (p<.001). Evidence for construct validity was also presented by Rotter, Seeman, & Liverant (1962).

The notion of locus of control as a generalized expectancy receives little to no support in factor-analytic studies. Lefcourt (1980) notes that Rotter and others who originally created much of the interest in locus of control did not envision it as a unidimensional construct. A body of research then developed based on the assumption of a general, unidimensional locus of control. Since that assumption receives little support from factor analytic studies, there is neither a sound theoretical reason nor an empirical basis for the use of a broad locus of control scales with most populations. More recently, Coombes & Schroeder (1988) emphasized that despite
discouraging empirical evidence concerning a general expectancy of internal or external (I-E) locus of control, researchers appeared reluctant to abandon Rotter’s original hypothesis.

Despite concerns shown by factor analytical studies, Rotter (I-E) Scale continues to enjoy widespread use for measuring generalized locus of control. Keeping in view its extensive use, this study also made use of Rotter’s (I-E) scale for measuring internal-external locus of control.

(G) **IPAT Anxiety Scale Questionnaire (Cattell & Scheier, 1963)**

The IPAT Anxiety Scale Questionnaire was developed from extensive research and practice (Cattell, 1956, 1957, 1959, Cattell & Scheier, 1961) as a means of getting clinical anxiety information rapidly, objectively and in a standard manner.

It is based on a second order anxiety factor defined by five oblique first order factors of 16 PF. It is a brief and clinically valid questionnaire. It is applicable to all but the lowest educational levels and appropriate for ages 14 or 15 years or upward throughout the adult range. It gives an accurate appraisal of free anxiety level, supplementing clinical diagnosis and facilitating all kinds of research or mass screening operations where very little diagnostic or assessment time can be spent with each examinee. ASQ provides reliable and valid results for measuring trait anxiety. It is easily administered individually or to a large group at one time. The questionnaire consists of 40 questions distributed among the five anxiety measuring factors as:
<table>
<thead>
<tr>
<th>Factors</th>
<th>No. of Items</th>
<th>Covert</th>
<th>Overt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defective integration, lack of self sentiment</td>
<td>8</td>
<td>1,2,3,4</td>
<td>21,22,23,24</td>
</tr>
<tr>
<td>Ego Weakness, lack of ego strength</td>
<td>6</td>
<td>5,6,7</td>
<td>25,26,27</td>
</tr>
<tr>
<td>Suspiciousness or Paranoid insecurity</td>
<td>4</td>
<td>8,9</td>
<td>28,29,</td>
</tr>
<tr>
<td>Guilt proneness</td>
<td>12</td>
<td>10,11,12,13,14,15</td>
<td>30,31,32,33,34,35</td>
</tr>
<tr>
<td>Frustrative tension or Id pressure</td>
<td>10</td>
<td>16,17,18,19,20</td>
<td>36,37,38,39,40</td>
</tr>
</tbody>
</table>

Each question has three response alternatives and any single item contributes to only one of the five components. The anxiety scale questionnaire is designed to give a total composite anxiety score as well as the scores on five different components.

Three kinds of scores are possible:

1. A single total anxiety score based on all 40 items.
2. A break down into:
   a) An unrealized, covert anxiety score, Score A, for 1-20 items; and
   b) An overt, symptomatic, conscious anxiety score, Score B, for 21 to 40 items.
3. A breakdown of total anxiety score into the five components of anxiety.

In the present study, scores on five different components of second-order anxiety factors were used.
A vast amount of research, supporting and developing the rationale and validity of the anxiety scale, has been conducted (Cattell, 1956, 1957, 1959; Cattell & Scheier, 1961). The second order anxiety factors are especially robust and replicate well across many diverse populations (Karson & o'Dell, 1977; Krug & Laughlin, 1977). The reliability and validity of the questionnaire have been found to be satisfactory by the authors. The questionnaire has also been used extensively in India and found useful. The studies have found scale measures to be fairly reliable (Upmanyu & Singh, 1984; Upmanyu, Gill, & Singh, 1982; Hundal, Sudhakar, & Sidhu, 1972).

**Administration of Tests**

The following tests were administered in ‘random’ order, requiring six different sessions:

1. Revised UCLA Loneliness Scale.
2. Hopelessness Scale.
3. Automatic Thoughts Questionnaire.
4. Zung Self-rating Depression Scale
5. Social Support Questionnaire
6. Family Environment Scale
7. Internal – External Scale
8. IPAT Anxiety Scale Questionnaire.

The tests were administered in small groups of 8 to 12 participants. The doubts of the participants were removed before permitting them to fill out different questionnaires.

The general testing conditions were satisfactory. Since efforts were made to establish rapport with the participants in order to elicit reliable and authentic information. Participants were told that the information was being collected purely for research purpose. They were also assured that the information to be collected would remain
strictly confidential and presented only in a form in which no person could be identified. The promise of privacy appears to have gone a long way in establishing psychological rapport because a large number of participants contacted the investigator later on and enquired about their performance on different measures. Cooperation of principals and teachers of different schools also helped in eliciting reliable information from the participants.

Despite the tedious nature of task involving test administration, participants showed keen interest in filling out different questionnaires.

**Scoring of the Tests**

The tests were scored by the following procedures suggested by authors of different tests;

The Revised UCLA Loneliness Scale was scored for one measure of global loneliness.

Hopelessness Scale and Automatic Thought Questionnaire were scored for two measures pertaining to hopelessness and negative automatic thoughts. The measures of depressive symptoms were obtained by scoring Zung Self-rating Depression scale.

Social Support Questionnaire yielded two scores: (a) perceived availability of the number of persons listed (b) satisfaction with the available support. The measure of Locus of Control was obtained by scoring Rotter's Internal-External Scale. The Family Environment scale was scored for the ten measures referring to cohesion, expressiveness, conflict, independence, achievement-orientation, intellectual-cultural orientation, active – recreational orientation, moral-religious emphasis, organization, control. The IPAT Anxiety Scale Questionnaire was scored for five components of anxiety.

Thus, as a result of scoring different tests, the following measures were obtained:
a. One measure of global loneliness obtained from the Revised UCLA Loneliness Scale.
b. One measure each of hopelessness, negative automatic thoughts and depressive tendencies.
c. Two measures of social support: perceived availability of number of supportive persons and satisfaction with available support
d. Ten measures of family environment: Cohesion, expressiveness, conflict, independence, achievement - orientation, intellectual-cultural orientation, active - recreational orientation, moral - religious emphasis, organization, control.
e. One measure of locus of control
f. Five measures of anxiety

**Analysis**

The following analyses were done:

(a) To examine the nature of frequency distributions of different measures, the following statistical measures were obtained:

(I) Mean,
(II) Median,
(III) Standard Deviation,
(IV) Skewness, and
(V) Kurtosis.

(b) Step wise regression equation involving one measure of global loneliness, one measure of depression, one measure of locus of control, one measure each of hopelessness and negative automatic thoughts, two measures of social support, ten measures of family environment and five measures of anxiety was formulated to identify the salient predictors of loneliness.