CHAPTER III
METHODOLOGY

The present study was designed to test various hypotheses concerning “comparing anxiety-depression comorbidity with pure anxiety and pure depression on different cognitive and personality measures”. The empirical verification of the proposed hypotheses is dependent, firstly on reliable measurements of the variables of ultimate interest; and secondly, on the methods and procedures employed for deriving conclusions from such measurements. This required:

a) Selection of an adequate sample;

b) Selection of appropriate tools that could be profitably used for reliable measures; and

c) Selecting suitable statistical techniques for analyzing the data.

Thus, it is pertinent to describe the sample, specific tools, and the methods and procedures employed in completing the research being reported.

The description of the sample (providing data for testing the proposed hypotheses) is given in the subsequent pages. This chapter also describes the tools, which have been used for collecting data; in addition the information concerning administration and scoring of the tests used is also given in subsequent pages, and the procedure of analyses has also been discussed in this chapter.

SAMPLE

The initial sample comprised of 750 adolescents in the age range of 15-17 years. Adolescents were the focus of the study because adolescents are more vulnerable to anxiety and depression, thus providing the more powerful analysis. The sample was selected from different schools and colleges in Jalandhar City (Punjab). The reason for delimiting sample to Jalandhar City is based on the fact that little information is available in this particular area of research. The sample was selected by using Purposive Incidental Sampling technique.

Participants scoring above (Pₘ) on all four measures mentioned below:

- Beck Depression Inventory,
- Zung Self Rating Depression Scale,
were diagnosed as Comorbid group of anxiety and depression. The participants scoring above \( P_{80} \) on two measures, namely IPAT Anxiety Scale Questionnaire and N-scale of Eysenck Personality Questionnaire and below \( P_{20} \) on two measures of depressive tendencies namely, Beck Depression Inventory and Zung Self-rating Depression Scale were categorized as pure anxious group. Likewise, the participants scoring above \( P_{80} \) on the two measures of depressive tendencies, namely Beck Depression Inventory and Zung Self-rating Depression Scale, and below \( P_{20} \) on the two measures, namely IPAT Anxiety Scale Questionnaire and N-Scale of Eysenck Personality Questionnaire were categorized as pure depressive group.

The final sample comprised of 39 adolescents. Out of 39, 13 adolescents belonged to comorbid group, 13 belong to pure anxious group and 13 belonged to pure depressive group.

**TESTS**

A. Measures of Personality

1. IPAT Anxiety Scale Questionnaire (Cattell & Scheier, 1963).
2. Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975).

B. Self Report Measures of Depression


C. Measures of Negative Cognition

1. Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974).
2. Automatic Thought Questionnaire (Holland & Kendall, 1980).

D. The Scale for Suicide Ideation (Beck, Kovacs, & Weissman, 1979).

E. The Family Environment Scale (Moos & Moos, 1994).
A. MEASURES OF PERSONALITY


The IPAT Anxiety Scale Questionnaire (ASQ) was developed from extensive research and practice as a means of getting clinical anxiety information rapidly, objectively and in a standard manner. It is a brief, non-stressful, clinically valid questionnaire for measuring anxiety, applicable to all but the lowest educational levels and appropriate for ages of 14 or 15 years or upward throughout the adult range. The scale 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.

The IPAT Anxiety Scale Questionnaire has 40 items distributed among five components. The five components included in ASQ are as follows:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Description</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3</td>
<td>Defective integration, lack of self sentiment</td>
<td>8</td>
</tr>
<tr>
<td>C</td>
<td>Ego weakness, lack of ego strength</td>
<td>6</td>
</tr>
<tr>
<td>L</td>
<td>Suspiciousness or paranoid insecurity</td>
<td>4</td>
</tr>
<tr>
<td>O</td>
<td>Guilt proneness</td>
<td>12</td>
</tr>
<tr>
<td>Q4</td>
<td>Frustrative tension or id pressure</td>
<td>10</td>
</tr>
</tbody>
</table>

Participants respond to each item by rating themselves on three alternatives. It is a widely accepted trait anxiety measure.

The psychometric characteristics of this scale have been well documented in Indian studies (Upmanyu & Singh, 1984; Upmanyu, Gill, & Singh, 1982; Hundal & Upmanyu, 1974, 1981; Hundal, Sudhakar, & Sidhu, 1972).

2. EYSENCK PERSONALITY QUESTIONNAIRE (EYSENCK & EYSENCK, 1975)

The Scale of Eysenck Personality Questionnaire (EPQ) was first published in 1975 and is a relatively short questionnaire designed to measure the basic dimensions
of personality as proposed by Eysenck. The questionnaire as currently constituted presents a three dimensional analysis of personality with orthogonal super-factors of extraversion-introversion (E-I), neuroticism (N) and psychoticism (P). In addition it includes Lie-Scale (21 Items) which measures a tendency to fake good and some degree of social naivété (Eysenck & Eysenck, 1975). Thus, in comparison to EPI it provides an additional scale, i.e., P-scale comprising of 25 items. The three other scales in E.P.Q i.e., extraversion, neuroticism and lie-scale have already been used in Eysenck Personality Inventory. However, there is the recognition that the nature of extraversion has changed in the most recent version of the scales. While in the E.P.I extraversion clearly contained the two components of impulsivity and sociability (Eysenck & Eysenck, 1963), in the E.P.Q. extraversion has been largely refined of the impulsivity items, which in turn have been attracted to the newer dimension of Psychoticism (Eysenck & Eysenck, 1976).

Eysenck Personality Questionnaire has been subjected to considerable amount of research (McKenzie, 1988; O’Gorman & Hattie, 1986; Barrett & Kline, 1980; Helmes, 1980; Loo, 1979). Several decades of research have identified N as a stable, higher-order personality trait that influences a large number of thoughts and behaviors (Eysenck, 1981). Loo’s study failed to locate Eysenck’s factors at either the first or higher orders. Helmes (1980) observed highly skewed distributions of the P-scores and managed to retrieve only 14 of the 25 P-items at the first order. Barrett & Kline (1982) provided a wealth of detail on the factor structure of E.P.Q which appeared with remarkable clarity, the only exception being the low retrieval of P-items in some samples.

Bishop (1977) and Block (1977) have criticized the concept of “psychoticism”, embodied in the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1976 a, 1976b). Block (1977) suggested that more work is needed on the P-scale before it is offered for use to the scientific and professional communities. However, in a brief rejoinder to these critiques, Eysenck (1977) concluded that there is much evidence for the viability of the concept of Psychoticism and for the validity of the questionnaire measurement of Psychoticism.

O’Gorman & Hattie (1986) on the basis of an investigation using an Australian sample concluded that although no doubt a greater number of factors than 4 could be extracted from the data matrix, there seemed to be no theoretical reason for
doing so and suggested that the future effort would be better spent in attempts to confirm the predicted factor structure than in further exploratory tests. The authors found evidence for the confirmation of the factor structure of the EPQ using an Australian sample. Further McKenzie (1988) concluded that the analysis provided conclusive confirmation that Eysenck’s factors P, E, N and L, are real, reliable, and replicable across populations and sexes and they can be located at the first order and both P and N are sensitive to dissimulation.

Heath, Jardine, Eaves, & Martin (1988) examined the phenotypic factor structure of the E.P.Q. in an Australian sample. The results of phenotypic factor analysis are consistent with Eysenck’s view that Extraversion, Neuroticism and Social Desirability (Lie), as measured by EPQ, are unitary traits. In the 4-factor solution, the fourth factor could clearly be identified with Eysenck’s concept of P (Eysenck & Eysenck, 1976). However, when more than four factors were estimated, the P factor progressively split into separate unconventional/impulsive, suspiciousness, cruelty and punctuality factors. The single P factor obtained in the 4 factor solution may arise merely because we are extracting too few factors. Recent reports (Furnham & Thompson, 1991; Eysenck & Gudjonsson, 1989) have attested to the importance of Eysenckian Psychoticism in self-reported delinquency.

The test has been used in India and found suitable (Upmanyu & Singh, 1984; Upmanyu et al., 1982; Hundal & Upmanyu, 1981). In brief, despite important concerns mentioned in the preceding paragraphs, Eysenck Personality Questionnaire, which is fairly reliable and valid, has been extensively used for deriving measures pertaining to psychoticism, neuroticism, extraversion and dissimulation.

B. SELF REPORT MEASURES OF DEPRESSION

1. BECK DEPRESSION INVENTORY

Test Description:

The BDI-II is a 21-item self-administered inventory designed to measure the intensity of depressive symptoms in psychiatric and non-psychiatric population of both adults and adolescents (Beck, Steer, & Brown, 1996). Each item contains a header that is intended to focus the examinee on the general purpose of the response options. Directly below this label are four statements listed in order of increasing
severity. Respondents are instructed to choose the alternative that best describes how they felt during the “past two weeks, including today.” A sample item follows:

5. Guilty Feelings

0  I don’t feel particularly guilty.
1  I feel guilty over many things I have done or should have done.
2  I feel guilty most of the time.
3  I feel guilty all of the time.

Items are rated on a 4-point scale (0 to 3) and total scores are obtained by tallying the ratings for all 21 items. Scores range from 0 to 63, with higher scores reflecting increased depressive severity. For instance, scores ranging between 0 and 13 are indicative of ‘minimal depression’; scores that fall between 14 and 19 are considered to reflect a ‘mild’ level of depression; scores 20 to 28 are considered “moderate”; and a score ranging from 29 to 63 is labeled “severe.” The BDI-II requires approximately 5 to 10 minutes to complete and may be administered to individuals 13 to 80 years of age.

Theoretical Basis

The BDI-II items were specifically selected to evaluate the symptoms attitudes characteristic of the phenomenology of depression rather than to adhere to any particular theory (Beck et al., 1996). Additionally, although the BDI-II’s items are congruent with the criteria outlined in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994), the BDI-II is intended to identify the severity of symptoms and not nosological depression.

Test Development

The original BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) was designed to be administered in an interviewer-assisted fashion by trained professionals (Katz, Katz, & Shaw, 1999; Beck et al., 1996). The BDI items were initially drawn from clinical observations and typical descriptions of symptoms provided by depressed patients. These descriptions were refined and assembled to yield a 21-item measure with response choices ranging from 0 to 3 per item. Each statement was given a weight between 0 and 3 points. The original BDI asked respondents to describe “the way you feel today, that is, right now” (Beck & Steer,
1984). The 1978 revision, which was published as the BDI-IA in Beck, Rush, Shaw, & Emery (1979), permitted simpler administration and scoring (Beck & Steer, 1984). For example, the items were standardized so that they would each involve only four possible choices, alternative ways of asking the same questions were eliminated, and the language of the items was clarified (the use of double negatives was avoided). The BDI-IA was designed as a self-report index and the temporal focus was on the “past week, including today”.

The BDI-IA demonstrated adequate reliability and validity (Beck & Steer, 1988). However, it became apparent that this instrument did not correspond adequately to current diagnostic symptom criteria, and questions were raised regarding its content validity. For example, the BDI-IA covered six of the nine symptoms highlighted in DSM-IV. In addition, this instrument only permitted the assessment of insomnia and decrease in appetite and weight rather than reversed neurovegetative symptoms (Moran & Lambert, 1983; Vredenburg, Krames, & Flett, 1985).

Several changes were made to the BDI-II to increase its correspondence with DSM-IV: Four items (i.e., “body image change,” “work difficulty,” “weight loss,” and “somatic preoccupation”) were eliminated, 17 response options were reworded, 2 items were relocated, 4 new items were constructed (i.e., “agitation,” “worthlessness,” “loss of energy,” and “concentration difficulty”), item labels were provided to make the intention of each item more explicit and the time frame was extended to 2 weeks (Beck, Steer, Ball, & Ranieri, 1996).
## TABLE: Internal Consistency Estimates for the Beck Depression Inventory-II

<table>
<thead>
<tr>
<th>Reference</th>
<th>Sample</th>
<th>Coefficient Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychiatric</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beck et al. (1996)</td>
<td>140 adult outpatients</td>
<td>0.91</td>
</tr>
<tr>
<td>Beck et al. (1996)</td>
<td>500 adult outpatients</td>
<td>0.92</td>
</tr>
<tr>
<td>Buckley, Parker, &amp; Heggie (2001)</td>
<td>416 substance-abusing males</td>
<td>0.91</td>
</tr>
<tr>
<td>Steer, Beck, &amp; Brown (1997)</td>
<td>210 adult outpatients</td>
<td>0.90</td>
</tr>
<tr>
<td>Steer, Ball, Ranieri, &amp; Beck (1999)</td>
<td>210 adult outpatients</td>
<td>0.90</td>
</tr>
<tr>
<td>Steer, Clark, Beck, &amp; Ranieri (1999)</td>
<td>840 adult outpatients</td>
<td>0.92</td>
</tr>
<tr>
<td>Steer, Kumar, Ranieri, &amp; Beck (1998)</td>
<td>210 adult outpatients</td>
<td>0.92</td>
</tr>
<tr>
<td><strong>Neuropsychiatric</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arnau, Meagher, Norris, &amp; Bramson (2001)</td>
<td>340 primary care patients</td>
<td>0.94</td>
</tr>
<tr>
<td>Beck et al. (1996)</td>
<td>120 college students</td>
<td>0.93</td>
</tr>
<tr>
<td>Dozois, Dobson, &amp; Ahnberg (1998)</td>
<td>1,022 college students</td>
<td>0.91</td>
</tr>
<tr>
<td>Osman, Kopper, Barrios, Osman, &amp; Wade (1997)</td>
<td>230 college students</td>
<td>0.90</td>
</tr>
<tr>
<td>Steer &amp; Clark (1997)</td>
<td>160 college students</td>
<td>0.89</td>
</tr>
<tr>
<td>Whisman, Perez, &amp; Ramel (2000)</td>
<td>576 college students</td>
<td>0.89</td>
</tr>
</tbody>
</table>

### Comparability of the BDI-II to the BDI

The BDI-II appears comparable to its earlier versions in terms of reliability, but it is a clearly superior instrument in terms of its validity (Dozois & Dobson, 2002; Dozois et al., 1998). Beck & Steer (1984) found that the original (1961) version and 1978 (BDI-IA) revision yielded coefficient alphas of .88 and .86, respectively (Beck,
Steer, & Garbin, 1988). The average internal consistency for the BDI-II is somewhat higher (α = .91). Earlier factor analytic studies of the BDI revealed that a three-factor solution (Negative Attitudes toward Self, Performance Impairment, and Somatic Disturbance) was most frequently identified in the literature (Beck et al., 1988). However, the number of factors extracted ranged anywhere from one to seven and the average number of factors was 3.96 (SD = 1.91) (Beck et al., 1988). Conversely, research conducted on the BDI-II indicates that a stronger and more stable factor structure exists than for the BDI and BDI-IA (Beck et al., 1996; Dozois et al., 1998; Steer et al., 1999; Steer et al., 1998).

Beck et al. (1996) noted that “the transition from the usage of the BDI-IA to that of the BDI-II should introduce no meaningful interpretative problems” (p.596). Although the mean BDI-II score is approximately 2 points higher than the BDI-IA (Beck et al., 1996; Dozois et al., 1998), a similar relationship to other inventories is demonstrated (Beck et al., 1996) and conversions are available in the test manual. Many of the limitations of the BDI appear to have been resolved with the 1996 revision, making the BDI-II an even stronger instrument than its earlier versions.

2. ZUNG SELF-RATING DEPRESSION SCALE (ZSDS)

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. The original form of the ZSDS (Zung, 1965) contains 20 items, with 10 items keyed negatively and 10 positively. For each item, the subject rates whether the item occurred 1 = a little of the time, 2 = some of the time, 3 = a good part of the time, or 4 = most of the time. The time frame is the present. The items were worded in a positive as well as negative direction in order to break any tendency towards response set. A brief description of the 20 depressive symptoms is given below:
<table>
<thead>
<tr>
<th>Item</th>
<th>Symptoms</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 Disturbances</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>Psychomotor Retardation</td>
</tr>
<tr>
<td>13</td>
<td>Psychomotor 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 Thoughts</td>
</tr>
<tr>
<td>20</td>
<td>Dissatisfaction</td>
</tr>
</tbody>
</table>
The maximum contribution of behavioural and somatic features to the full scale score is 50 percent (items 2 to 10, 13).

In using the scale, the subjects are asked to rate each of the 20 items in terms of symptoms or feelings described. Response alternatives ranged from ‘a little of the time’ to ‘most of the time’. The response alternatives are given a score of 4 to 1 and 1 to 4 for positively and negatively worded items respectively. The scores range from 20 to 80 with higher scores indicating the presence of higher depressive tendency.

The author has extensively documented psychometric properties of the scale. A number of other authors, especially Tanka-Matsumi & Kameoka (1986), Gabrys & Peters (1985) and Schaefer, Henderson, Glover, & Christen (1985) have also found that 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, and 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 checklist. The author 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 (Tanka-Matsumi & Kameoka, 1986) reported Chronbach alpha coefficient of 0.81 for a sample of 391 normal college students. The authors also found evidence for convergent validity but the discriminant validity was not clearly demonstrable as pairs of anxiety and depression scores correlated strongly.

The problem of the specificity of various self report instruments particularly with regard to 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 anxiety reactions and from other personality disorders. This concern with specificity becomes important only when one attempts to use the self-report scales as diagnostic instruments, a purpose for which they were never intended (Carroll, Fielding, & Blashki, 1973).

Despite some concern about discriminant validity of the scale, the review of literature (Upmanyu, Upmanyu, & Dhingra, 1992; Upmanyu & Reen, 1990, 1991) reveals that Zung self rating depression scale has been extensively used by researchers.
as self report measures of depressive tendencies. The present study also made use of Zung’s scale for depressive symptoms or tendencies.

C. MEASURES OF NEGATIVE COGNITION

1. BECK HOPELESSNESS SCALE (BHS)

The BHS is a 20-item true-false questionnaire that is easy to administer and score. Nine of the twenty items are false keyed to control for acquiescent response styles. Each item is scored either 0 or 1, with total scores ranging from 0 to 20. Higher scores reflect more intense levels of hopelessness. Overall, the content of the items represents negative expectations for the future. For example, item 2 states “I might as well give up because I can’t make things better for myself,” (true-keyed response) and item 13 states “When I look ahead to the future, I expect I will be happier than I am now” (false-keyed response). Generalized pessimism regarding the future is the main focus of the BHS and appears to account for the majority of response variance in factor analytic studies.

Theoretical Basis and Test Development

Based on previous theory implicating hopelessness with depression and suicide, Beck, Weissman, Lester, & Trexler (1974) developed and tested a measure that would allow the construct of hopelessness to be examined quantitatively. Although hopelessness is somewhat of an abstract concept, Beck et al. (1974) followed the suggestions of Stotland (1969) and defined hopelessness objectively in terms of a person’s negative expectations for the future.

Several stages were involved in the development of this scale. First, 9 of the 20 items were adapted from a previous test of attitudes toward the future (Beck & Steer, 1988). The remaining items were derived from pessimistic statements about the future made by psychiatric patients who were previously rated by clinicians as exhibiting significant hopelessness. Next, the scale was administered to depressed and nondepressed patients and feedback was obtained regarding the appropriateness of each item to the construct. Finally, several clinicians were asked to rate the scale on its face validity and comprehensibility. Changes in wording were made based on the suggestions of patients and clinicians.
Psychometric Characteristics

The reliability of the BHS is well supported, primarily with clinical populations. In adult psychiatric patients, internal reliability coefficients (Kuder-Richardson-20) range from .83 to .93 and are often around .90 (Steer & Beck, 1997; Beck, Steer, & Brown, 1993; Beck, Steer, Beck, & Newman, 1993; Young, Halper, Clark, Scheftner, & Fawcett, 1992; Mendonca, Holden, Mazmanian, & Dolan, 1983; Durham, 1982). Reliability estimates are equally strong with adolescent psychiatric patients (Steer, Kumar, & Beck, 1993a; Kumar & Steer, 1985). In contrast to research on psychiatric samples, the internal reliability of the BHS is typically lower and more variable in nonpsychiatric populations (Rew, Taylor, Seehafer, Thomas, & Yockey, 2001; Johns & Holden, 1997; Holden & Fekken, 1988; Durham, 1982). It is also possible that some individual test items may lower the overall reliability of the scale (Steed, 2001; Steer & Beck, 1997; Young et al., 1992; Holden & Fekken, 1988). In a nonpsychiatric sample, Steed (2001) found that items 4, 5, 8, and 13 exhibited especially low item-total correlations and recommended excluding these items when testing this population. Similarly, Young et al. (1992) asserted that while the BHS items seem to tap the construct of hopelessness well, they do so only for persons who exhibit moderate to severe levels of hopelessness. Congruent with the weaker internal reliability coefficients found in nonclinical groups, the BHS appears to be less reliable in individuals who display low levels of hopelessness.

Test-retest reliability of the BHS appears to be high in nonpsychiatric students. Holden & Fekken (1988), for instance, reported a 3-week test-retest reliability coefficient of .85. For clinical groups, these estimates are lower, which may reflect genuine clinical change. In mixed-psychiatric samples, Beck & Steer (1988) reported test-retest reliability coefficients of .69 and .66 over 1 and 6 weeks, respectively.

Substantial support exists for the validity of the BHS. This instrument shows robust relationship with related constructs, across all types of population. Among adult clinical patients, the BHS correlates significantly with depression symptoms (Beck et al., 1993; Strosahl, Chiles, & Linhen, 1992; Dyck, 1991; Wilkinson & Blackburn, 1981; Winefield, 1979), suicidal ideation (Mendonca & Holden, 1998; Beck et al., 1993; Dyck, 1991; Wetzel, Margulies, Davis, & Karam, 1980), and suicide intent (Strosahl et al., 1992; Wetzel et al., 1980; Wetzel, 1976). In addition, the BHS correlates with suicide intent even after depressive severity has been
partialled out (Beck & Steer, 1988; Wetzel et al., 1980). The BHS also correlates negatively and significantly ($r = -.63$) with the Reasons for Living Inventory (RFL; Dyck, 1991), a measure developed to assess people’s reasons for staying alive when pondering suicide. Further evidence for the validity of the BHS emerges from findings that this measure distinguishes between psychiatric and nonpsychiatric groups, and between ideators and nonideators. For example, suicide attempters and psychiatric inpatients display significantly higher BHS scores than do nonclinical controls (Simonds, McMahon, & Armstrong, 1991; Durham, 1982). Moreover, depressed patients exhibit higher scores than nonpsychiatric controls, recovered depressed patients, and never depressed controls (Hamilton & Abramson, 1983; Wilkinson & Blackburn, 1981). After controlling for initial depression severity and length of hospital stay, McCranie & Riley (1992) found that pretreatment hopelessness scores were significant predictors of depressive severity 3 weeks later. Finally, the BHS also differentiates between suicide ideators and nonideators (Beck et al., 1993). Hopelessness, in fact, appears to be a better predictor of suicide intent than is depression (Beck & Steer, 1988; Wetzel et al., 1980; Wetzel, 1976).

The validity of the BHS is also supported in nonclinical groups. In these samples, the BHS correlates significantly with severity of depressive symptoms (Johns & Holden, 1997; Joiner & Rudd, 1995; Thackston-Hawkins, Compton, & Kelly, 1994; Dixon, Heppner, Burnett, & Lips, 1993; Whatley & Clopton, 1992; Dyck, 1991; Rudd, 1990; Wilkinson & Blackburn, 1981; Prociuk, Breen, & Lussier, 1976), suicide ideation (Dyck, 1991), and negatively with measures of hope (Herth, 1991; Obayuwana, Collins, & Carter et al., 1982). It is important to note, however, that the validity of the BHS is limited in this population because of its questionable reliability.

There exists support for the validity of the BHS in adolescent samples. This instrument correlates significantly and positively ($r = .68$) with the BDI (Johnson & McCutcheon, 1981) and negatively ($r = -.64$) with the RFL-A (an adolescent version of the RFL) Gutierrez, Osman, Kopper, Barrios, & Bagge (2000). In fact, Kumar & Steer (1995) found that the BHS was a more powerful predictor of suicide ideation than 12 other variables, including history of sexual abuse, current suicide attempt, past suicide attempt, ethnicity, and diagnosis of a mood disorder. The BHS also appears to predict suicide ideation better than both the BDI and BAI in adolescent
inpatients (Steer, Kumar, & Beck, 1993a). Although this evidence is encouraging, some studies raise concern about whether the BHS is as valid for adolescents as it is for adults. The BDI and BHS correlated highly ($r = .75$) in a sample of female, adolescent suicide attempters, but neither instrument was significantly associated with suicide intent (Rotheram-Borus & Trautman, 1988). Furthermore, Gutierrez et al. (2000) found that BHS did not significantly differentiate those individuals who never seriously considered suicide from those who attempted.

The predictive utility of BHS has been examined across a number of studies. Beck Brown, Steer, Dahlsgaard, & Grisham (1999) used receiver operating characteristics (ROC) analysis to identify cutoff scores that provided the best prediction of future suicide. In these analyses high sensitivity was understandably considered more important than high specificity in identifying potential suicide attempters. With a cutoff of 8 and higher representing a high-risk group, the BHS was highly sensitive (90%) but limited in specificity (42%). Individuals scoring at or above this threshold were six times more likely to commit suicide than those scoring below the cutoff. These findings concur with those of Beck, Brown, Berchick, & Steer (1990), who found that a cutoff score of 9 yielded 94% sensitivity and 41% specificity. In this study, individuals in the high-risk group were 11 times more likely to commit suicide than those in the low-risk group. Using a more stringent cutoff criterion, Cochrane-Brink, Lofchy, & Sakinofsky (2000) found that scores of 15 or higher yielded a sensitivity rate of 100% and a specificity rate of 71%. Negative predictive power was excellent at 100%, and positive predictive power (45%) was much higher than the 1.3% reported by Beck et al. (1999). Therefore, using a slightly higher cutoff score than the recommended 8 or 9 may increase overall classification rates without necessarily jeopardizing sensitivity.

Factor analytic studies have also supported the construct validity of the BHS. The BHS was originally reported to consist of three factors (Beck et al., 1974), but more recent studies have demonstrated that the variance is best explained by a one factor solution (Steed, 2001). This finding is replicable across both adult clinical (Dyce, 1996; Young et al., 1992; Mendonca et al., 1983) and nonclinical (Steed, 2001; Chang, D’ Zurilla, & Maydeu-Olivares 1994; Ward & Thomas, 1985) samples.
Despite all the observations mentioned above, BHS has been extensively used by earlier researchers. The use of BHS will help in maintaining consistency and accuracy.

2. AUTOMATIC THOUGHT QUESTIONNAIRE (ATQ: HOLLON & KENDALL, 1980)

Automatic Thought Questionnaire is a 30-item questionnaire designed to measure the frequency of occurrence of negative automatic thoughts in depression. Items are rated on a 5-point scale: 1 = “not at all”, 2 = “sometimes”, 3 = “moderately often”, 4 = “often” and 5 = “all the time”. The items are rated for occurrence during the past week. Examples of typical items are:

1. “I am no good”.
2. “My life is in a mess”.
3. “I am a failure”.
4. “I am worthless”.
5. “I hate myself” and “My future is bleak”.

The range of possible scores is from 30-150. The questionnaire, developed with a college student population, discriminated between depressed subjects and non-depressed subjects. Hollon & Kendall (1980) reported high internal reliability, strong correlation with severity of depression, and good item-total statistics. In 348 college students, the Automatic Thought Questionnaire correlated significantly with both the Beck Depression Inventory and the Minnesota Multiphasic Personality Inventory-Depression Scale, the coefficients of correlation ranged from .45 to .70. Also using a college sample, Dobson & Breiter (1983) and Harrel & Ryan (1983) reported that ATQ possessed adequate internal reliability and strong sensitivity to the severity of depression. The ATQ was the most sensitive measure related to level of depression.

Dobson & Shaw (1986) found that the ATQ correlated positively and significantly with the two depression indices. Also, the ATQ correlated positively and significantly with every other cognitive assessment measure, and non-significantly with those cognitive response test scales not measuring depressive conditions. The authors concluded: “the Automatic Thought Questionnaire demonstrates strong convergent and discriminant validity”. Cronbach’s alpha coefficients were found to be
.94, .95 and .95 for different groups comprising of normal, psychiatric control and depressed respectively.

Thus Automatic Thought Questionnaire is a reliable and valid measure of the frequency of occurrence of negative automatic thoughts found in depression.

3. DYSFUNCTIONAL ATTITUDE SCALE (DAS: FORM A, WEISSMAN, 1979; WEISSMAN & BECK, 1978)

The test format used is that of typical self-report attitude or value scale. For each belief or attitude (the items), seven response categories are presented (totally agree; agree very much; agree slightly; neutral; disagree slightly; disagree very much; totally disagree). On a prior basis, determinations were made as to whether a disagreement or an agreement response indicates an adaptive or maladaptive reaction to the belief in a question. Scaling is on a modified Likert (1932) model, with the adaptive end of the scale assigned an arbitrary value of one, the next category is two, etc. and, with zero being used for omits on each item. Each individual then has a score for every item and, his total DAS is simply the sum of the scores he/she received on each item. The higher the total score, the more distorted is the individual’s way of thinking. As an example, if the statement were: “I can not be happy unless most people I know admire me” and the respondent decides that this statement is typical of his way of looking at things most of the times, he may reply that he may agree very much with this belief because his response is in the maladaptive direction, his score on his item would be +1.

The Dysfunctional Attitude Scale (DAS) was originally a 100 item scale devised to measure the respondent’s use of typical depressive assumptions (Beck, 1976). A sample of 275 undergraduates (100 males and 175 females) at the Pennsylvania State University were administered the 100-item version of the DAS by a member of the Department of Psychology. The major criticism that was voiced related to the length of time required in completing the 100 items. Therefore, in an attempt to balance brevity and reliability, the data obtained from this population were subjected to factor analyses, and an adaptation of a method described in Gulliksen (1950) was employed to construct two parallel forms of 40-items each (DAS-A and DAS-B). The range of possible scores is 40 to 280.
In the present study, Dysfunctional Attitude Scale, Form A was used. The DAS Form-A is a 40-item measure, designed to assess the respondents’ endorsement of typical depressogenic assumptions (Beck, Kovacs, & Weissman, 1975). The scale has been found to possess necessary psychometric properties. Form-A, used in this study, is reported to have high internal reliability, correlation with other cognitive assessment measures and sensitivity to severity of depression (Dobson & Shaw, 1986; Dobson & Breiter, 1983; Weissman & Beck, 1978).

D. THE SCALE FOR SUICIDE IDEATION

BECK SCALE FOR SUICIDE IDEATION (BSS)

Beck, Steer, & Ranieri (1988) developed a self-reported version of suicidal ideation that could be administered by either paper and pencil or computer. The BSS is a 21-item measure of which only the first 19 items are scored. The final two are items used to record information concerning previous suicide attempts. All items consist of three response options, ranging from 0 to 2. Respondents are asked to circle the statement that best describes how they have been feeling over the past week, including the current day. An example item;

0 I have moderate to strong wish to live.
1 I have a weak wish to live.
2 I have no wish to live.

Total scores, which range from 0 to 38, are obtained by adding the item values. The first five items (i.e., “wish to live,” “wish to die,” “reasons for living or dying,” “active suicide attempt,” and passive suicide attempt”) serve as an initial screen for suicide ideation. If respondents circle zero on both of the items pertaining to suicide attempts, they are instructed to skip to the end of this scale to complete the last two items.

Test Development

Suicide ideation can be defined as “the presence of current plans and wishes to commit suicide in individuals who have not made any recent overt suicide attempts” (Beck et al., 1988, p.499). Beck, Kovacs, & Weissman (1979) initially developed a clinician rating scale called the Scale for Suicidal Ideation (SSI). The items for this rating scale were generated on the basis of clinical observations, interviews with suicidal patients, and previous research in the area of suicide. This measure was
originally piloted on suicidal patients and its items were refined or eliminated if they were ambiguous, difficult to rate, or consisted of overlapping content. This test construction phase resulted in a 19-item clinician rating scale, designed to be administered as a semi-structured interview. The test developers were later interested in adapting the SSI into a self-report index of suicidal ideation that could be used independently or concurrently with this instrument. This new inventory, the BSS, was then tested on inpatient and outpatient sample.

**Psychometric Characteristics**

The internal consistency of the BSS is excellent in both adult and adolescent clinical samples. For the printed version of the BSS, coefficient alpha ranges from .87 (Beck & Steer, 1991) to .93 (Beck et al., 1988). The computer-administered version yields high coefficients that range from .90 (Beck & Steer, 1991) to .96 (Beck et al., 1988). Item total correlations are generally acceptable and range from .20 to .73 (M = 5.2, SD = .15). The test-retest reliability of the BSS appears to be moderate. Beck and Steer (1991), for example, reported a 1-week test-retest reliability coefficient of .54 in a sample of 60 adult inpatients. BSS scores decreased significantly during this time frame, which the authors hypothesized was the result of clinical improvement (Beck & Steer, 1991).

The validity of the BSS has also been tested using both administration formats. The paper and pencil and computerized versions of the BSS each correlate highly (r = .90) with clinician ratings (Beck et al., 1988), self-report (Beck & Steer, 1991; Cochrane-Brink et al., 2000), and related indices of suicidality (previous attempts, BDI-AI scores, the BDI-AI suicide ideation item; Beck & Steer, 1991). To date, only the printed version has been tested with adolescent inpatients (Kumar & Steer, 1995; Steer, Beck, Brown, & Beck, 1993). In this population, the BSS correlates well with past history of suicide attempts, the BDI-AI (excluding suicide ideation and hopelessness items), the presence of a mood disorder, the BSS and the BDI-AI (Kumar & Steer, 1995; Steer et al., 1993).

Given that only two studies have factor analyzed the BSS (Steer, Rissmiller, Ranieri, & Beck, 1994; Beck & Steer, 1991), it is not presently known whether a stable factor structure exists for this measure. Three main factors (active suicidal desire, suicidal ideation, and preparation for suicide) emerged in a fairly clear
and consistent manner in these studies (although Beck & Steer, 1991, actually reported a five-factor solution). Visual inspection of the factor loadings reported in these studies points to discrepancies that appear to limit the generalizability of the factor solutions reported. However, further investigation of this factorial validity of the BSS is needed.

Despite all the observations mentioned above, BSS has been extensively used by earlier researchers. The use of BSS will help in maintaining consistency.

E. FAMILY ENVIRONMENT SCALE

The Family Environment Scale (FES) is composed of 10 subscales that measure the actual, preferred, and expected social environment of families. These 10 FES subscales assess three underlying sets of dimensions: relationship dimensions, personal growth dimensions, and system maintenance dimensions. The relationship and system maintenance dimension primarily reflect internal family functioning, whereas the personal growth dimension primarily reflects the linkages between the family and the larger social context. The FES has three forms:

- The Real Form (Form R) measures people's perceptions of their current family environment.
- The Ideal Form (Form I) measures people's preferences about an ideal family environment.
- The Expectations Form (Form E) measures people's expectations about family settings.

THE REAL FORM

Form R helps people to describe their current family as they perceive it. Clinicians, consultants, and program evaluators use this form to

- Understand individuals' perceptions of their conjugal and nuclear families, for example, as part of family counseling or education programs.
- Formulate clinical case descriptions and understand the impact of the family on adaptation.
- Monitor change and promote improvement in families.
• Describe and compare family climates and contrast partners’ perceptions or parents’ and children’s perceptions.
• Predict and measure the outcome of treatment.
• Focus on how families adapt to life transitions and crises.
• Understand the impact of the family on children and adolescents.

THE IDEAL FORM

Form I allows people to describe the type of family they prefer. Some clinicians and consultants use Form I to assess family members’ value orientations and how they change over time, such as before and after family counseling. Others use both Form I and Form R to identify areas in which people want to change their family.

THE EXPECTATION FORM

Form E helps people to describe their expectations of a new family and help members of blended families to focus on how they expect their new family to function. Form E can also identify parents’ expectations about the family after a major life transition such as retirement or the youngest child leaving home.

Family Environment Scale

Relationship Dimensions

1. Cohesion: the degree of commitment, help and support family members provide for one another
2. Expressiveness: the extent to which family members are encouraged to express their feelings directly
3. Conflict: the amount of openly expressed anger and conflict among family members

Personal Growth Dimensions

4. Independence: the extent to which family members are assertive, are self-sufficient, and make their own decisions
5. Achievement Orientation: how much activities (such as school and work) are cast into an achievement-oriented or competitive framework
6. Intellectual Cultural Orientation: the level of interest in political, intellectual, and cultural activities

7. Active-Recreational Orientation: the amount of participation in social and recreational activities

8. Moral-Religious Emphasis: the emphasis on ethical and religious issues and values

**System Maintenance Dimensions**

9. Organisation: the degree of importance of clear organization and structure in planning family activities and responsibilities

10. Control: how much set rules and procedures are used to run family life

**TEST-RETEST RELIABILITY AND PROFILE STABILITY**

The 2-month test-retest reliabilities, all in an acceptable range, vary from a low of .68 for independence to a high of .86 for cohesion. Test-retest reliabilities were also relatively high for the 4-month interval. Gehring & Feldman (1988) found good 1-week test-retest reliabilities for adolescents' ranging of cohesion and control.

**DATA COLLECTION**

The tests were administered in a uniform sequence as follows:

A. IPAT Anxiety Scale Questionnaire.
B. Eysenck Personality Questionnaire.
C. Beck Depression Inventory.
D. Zung Self rating Depression Scale.
E. Hopelessness Scale
F. Automatic Thought Questionnaire.
G. Dysfunctional Attitude Scale.
H. Scale for Suicide Ideation.
I. Family Environment Scale.

First four questionnaires were presented to the initial sample of 750 adolescents with age range of 15-17 years with standard instructions for each
questionnaire. The final sample of 39 adolescents was given last five questionnaires with standard instructions and comprised of the following 3 distinct groups:

a) Comorbidity of anxiety and depression (N: 13)

b) Pure anxious group (N: 13)

c) Pure depressive group (N: 13)

The general testing conditions were satisfactory. Sincere efforts were made to establish rapport with the subjects to obtain reliable and authentic information. All of them were assured that the information given by them would be kept confidential and would be used for research purpose only.

ANALYSIS

The data were analyzed as follows:

I. Descriptive Statistics.

II. One-Way Analysis of Variance.

III. Scheffe’s Test