CHAPTER III
METHOD

SAMPLE

The sample of the current study was delimited to the students of Govt. Secondary schools of Chandigarh. In all there are 18 Govt. Secondary Schools in Chandigarh (Appendix 1). Out of these 18 schools, 6 schools were selected by making use of random sampling procedure. From these six schools, 200 male and 200 female adolescents in the age range of 12-18 years were selected by making use of purposive incidental sampling procedure. For the selection of sample the focus on students studying in Chandigarh was because of the fact that the rate of psychiatric disturbance among adolescents has increased in the recent past.

Inclusion Criterion

1. The participants belonged to non-clinical population.
2. The sample was selected from different Govt. Secondary schools of Chandigarh
3. The consent of the participants was obtained.
4. Children and adolescents belonged to intact families.

Exclusion Criterion

Participants with current and past psychiatric inpatient service were excluded.

TESTS USED

The following tests were used in the current study:

A. Culture Fair Intelligence Scale – Scale II, Form A and Form B (Cattell, 1961)

B. Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961)
A brief description of these tests is given below:

**A) Cattell’s Culture Fair Intelligence Test: Scale-2, Form A and Form B**

The Culture Fair Intelligence Tests measure intelligence in a manner designed to reduce, as much as possible, the influence of verbal fluency, cultural climate, and educational level. The tests, which may be administered individually or in a group, are non-verbal and require only that examinees be able to perceive relationships in shapes and figures. Each scale contains four subtests, involving different perceptual tasks, so that the composite intelligence measure avoids spurious reliance on a single skill.

There are three scales in the Culture Fair Series. Scale 1 was designed for use with children 4-8 years of age. It may also be used with older, mentally handicapped individuals. Scale 1 differs in format from the other tests in the series in utilizing eight, rather than four subtests, in not being wholly group administrable, and in requiring the examinee to understand and respond to verbal instructions.

Scale 2 and 3 are wholly group administrable. Nevertheless, occasions may arise in which the closer rapport of a one-on-one situation will be required to enable the individual being tested to perform most effectively. The examiner should be alert to such situations.

Table 3.1 shows the breakdown, item content, and time required to administer any one form of the tests. At this point, we might note that the existence of two forms, A and B, of each scale may cause confusion to some. The reason for the existence of two forms is mainly one of administrative convenience. Because of wide variability in class time scheduling among schools, for example, many occasions would arise when the full rest (Form A + Form B) could not be comfortably given in a single class period. However, each part of form can be reasonably administered in a single session. Additionally, the two-form design permits some extra benefits, such as a brief rest period between forms to reduce fatigue and aid test-taking morale.
Table 3.1: Items and Time allotted to each Subtest in Scale 2 And 3

<table>
<thead>
<tr>
<th></th>
<th>Scale 2 (Form A or B)</th>
<th>Scale 3 (Form A or B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Numbers of items</td>
<td>Time allotted</td>
</tr>
<tr>
<td>Test 1. Series</td>
<td>12</td>
<td>3 min.</td>
</tr>
<tr>
<td>Test 2. Classification</td>
<td>14</td>
<td>4 min.</td>
</tr>
<tr>
<td>Test 3. Matrices</td>
<td>12</td>
<td>3 min.</td>
</tr>
<tr>
<td>Test 4. Conditions (Topology)</td>
<td>8</td>
<td>2 ½ min.</td>
</tr>
<tr>
<td>Total</td>
<td>46 items</td>
<td>12 ½ min.</td>
</tr>
</tbody>
</table>

In the first subtest, the individual is presented with an incomplete, progressive series. His task is to select, from among the choices provided, the answer which best continues the series. The classification subtest differs slightly between Scales 2 and 3. The individual is presented with five figures. In Scale 2, he must select one, which is different from the other four. In Scale 3 he must correctly identify two figures, which are in some way different from three others.

In the matrices subtest the task is to correctly complete the design or matrix presented at the left of each row.

The final subtest, conditions (or topology), requires the individual to select, from the five choices provided, the one, which duplicates the conditions given in the far left box.

CONSISTENCY ACROSS CONTENTS, PARTS, AND TIME

Table 3.2 shows and 3.3 the reliability of scales 2 and 3, respectively. Reliability requires that a test be consistent. Since no single index of consistency is likely to satisfy all possible uses to which the test will be put, three separate methods of evaluation are given. The first method evaluates consistency in item content, while the second evaluates consistency across the two parts of each test. The third method evaluates consistency in test scores over time.

All coefficients have been evaluated across large and widely diverse samples. The differences in level of reliability between the short form and full test (form A + form B) are
sufficiently large to warrant administration of the full test, except when absolutely impossible, in order to obtain the best possible intelligence estimate.

Table 3.2: Reliability of the Culture Fair Test: Scale 2

<table>
<thead>
<tr>
<th>Method of evaluation</th>
<th>Average reliabilities across sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full test (A + B)</td>
</tr>
<tr>
<td>Consistency over items (Calculated by a variety of methods including split half and appropriate internal consistency formulas)</td>
<td>.87</td>
</tr>
<tr>
<td>Consistency overparts (interform correlations corrected to appropriate length)</td>
<td>.80</td>
</tr>
<tr>
<td>Consistency over time (Immediate test-retest correlations)</td>
<td>.84</td>
</tr>
</tbody>
</table>

Table 3.3: Reliability of the Culture Fair Test: Scale 3

<table>
<thead>
<tr>
<th>Method of evaluation</th>
<th>Average reliabilities across sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full test (A + B)</td>
</tr>
<tr>
<td>Consistency over items (Calculated by a variety of methods including split half and appropriate internal consistency formulas)</td>
<td>.85</td>
</tr>
<tr>
<td>Consistency overparts (interform correlations corrected to appropriate length)</td>
<td>.82</td>
</tr>
<tr>
<td>Consistency over time (test-retest correlations, time interval varying from immediate to over week.)</td>
<td>.82</td>
</tr>
</tbody>
</table>

VALIDITY: CONCEPTUAL AND CONCRETE

A good deal of specific validity information is contained in the technical supplement. Tables 3.4 and 3.5 summarize this information for scales 2 and 3:

Table 3.4: Validity of the Culture Fair Test: Scale 2

<table>
<thead>
<tr>
<th>Method of evaluation</th>
<th>Average reliabilities across sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full test (A + B)</td>
</tr>
<tr>
<td>Concept validity (direct correlations with the pure intelligence factor)</td>
<td>.85</td>
</tr>
<tr>
<td>Concrete validity (correlations with other tests of general intelligence including the GATB, WAIS, OTIS, DAT, WISC)</td>
<td>.77</td>
</tr>
</tbody>
</table>
Table 3.5: Validity of the Culture Fair Test: Scale 3

<table>
<thead>
<tr>
<th>Method of evaluation</th>
<th>Average reliabilities across sample</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full test (A + B)</td>
<td>Short form (A)</td>
</tr>
<tr>
<td>Concept validity (direct correlations with the pure</td>
<td>.92</td>
<td>.85</td>
</tr>
<tr>
<td>intelligence factor)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete validity (correlations with other tests of</td>
<td>.69</td>
<td>.66</td>
</tr>
<tr>
<td>general intelligence including the GATB, WAIS, OTIS,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAT, WISC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A review of researches clearly reveals that Culture Fair Intelligence Tests have been extensively used by researchers, interested in the assessment of Intelligence.

BECK DEPRESSION INVENTORY (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961)

The use of the self-report scales is frequent in psychiatric research. However, there is great debate concerning which one from the self-report scales is the best. Research provides no consistent data on the superiority of a specific scale over the others (Fountoulakis et al., 2003). The Beck Depression Inventory (BDI) (Beck et al. 1961) is a reliable and quick-in-use screening instrument and has received worldwide application in both psychiatric and nonpsychiatric patient populations (Beck et al. 1988). The BDI continues to fuel inquiry into the nature and assessment of depression. Several studies have evaluated the accuracy of the BDI as a screening instrument in medically ill and oncology samples and found it to be an accurate self-report measure of depression (Berard et al. 1998).

Content

Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21 item, self rated inventory with each item rated with a set of four possible answer choices of increasing intensity. When the test is scored, a value of 0 to 3 is assigned for each answer and then the total score is compared to a key to determine the depression’s severity. It can be administered for adolescents above 12 years as the reading level of the measure is only at sixth grade level and can be completed in about 10 minutes.
Symptoms measured by BDI items

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Symptom</th>
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<th>Symptom</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sadness</td>
<td>12</td>
<td>Loss of interest</td>
</tr>
<tr>
<td>2</td>
<td>Pessimism</td>
<td>13</td>
<td>Indecisiveness</td>
</tr>
<tr>
<td>3</td>
<td>Past Failure</td>
<td>14</td>
<td>Worthlessness</td>
</tr>
<tr>
<td>4</td>
<td>Loss of pleasure</td>
<td>15</td>
<td>Loss of energy</td>
</tr>
<tr>
<td>5</td>
<td>Guilty Feelings</td>
<td>16</td>
<td>Changes in sleeping pattern</td>
</tr>
<tr>
<td>6</td>
<td>Punishment feelings</td>
<td>17</td>
<td>Irritability</td>
</tr>
<tr>
<td>7</td>
<td>Self dislike</td>
<td>18</td>
<td>Changes in appetite</td>
</tr>
<tr>
<td>8</td>
<td>Self criticalness</td>
<td>19</td>
<td>Concentration difficulty</td>
</tr>
<tr>
<td>9</td>
<td>Suicidal thoughts and wishes</td>
<td>20</td>
<td>Tiredness or fatigue</td>
</tr>
<tr>
<td>10</td>
<td>Crying</td>
<td>21</td>
<td>Loss of sex interest</td>
</tr>
<tr>
<td>11</td>
<td>Agitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Loss of interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Indecisiveness</td>
<td></td>
<td></td>
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<td>17</td>
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<tr>
<td>19</td>
<td>Concentration difficulty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Tiredness or fatigue</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Loss of sex interest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diagnostic Efficiency of the Beck Depression Inventory

Beck et al. (1996) has recommended a score of 10 when screening for ‘mild’ depression, 16 for ‘mild to moderate’, 20 for ‘moderate to severe’ and 30 for ‘severe’ depression. Beck and Beamesderfer (1974) urged that cut-off scores for BDI should be based upon the clinical decisions for which the instrument is being used. For epidemiologic research purposes such as estimation of the prevalence of depressive disorders in palliative care settings, the higher cut-off point of 20 may be suitable. On the other hand, if the purpose of utilizing the BDI is to detect depressed advanced cancer patients, one might consider the possibility of lowering the cut-off score to minimize false negatives at the cost of increasing false positives.

Based on Beck et al., (1996) recommended cut-off scores, the statistical analysis showed that 69.5% of the participants scored more than 10, the cut-off point for ‘mild depression’; 39% scored more than 16, the cut-off point of ‘moderate to severe’ depression; and 11.4% scored more than 30, the cut-off point for ‘severe’ depression. Moreover, 76% female participants had mild depression, and 16% severe depression. Participants were
divided into two groups according to their age, those under 60 and over 60 years old. Patients in the former age group had higher BDI scores than older patients. Seventy-one percent of the patients under 60 years old had mild depression, and 10.4% had severe depression (Mystakidou et al., 2006).

Subramaniam, Harrell, Huntley, & Tracy (2009) evaluated the diagnostic efficiency of the Beck Depression Inventory (BDI) in detecting MDD, as assessed by psychiatrists administering the Diagnostic Interview for Children and Adolescents, and its factor structure, internal consistency, and discriminant validity in a clinical sample of adolescents with Substance Use Disorders (n=145). The objectives of this study were as follows: (a) to assess the diagnostic efficiency of the BDI in detecting MDD in a treatment-seeking sample of adolescents with Substance Use Disorders and (b) to assess the BDI for internal consistency, factor structure, and discriminant validity in this sample. A total of 184 participants and their guardians provided assent/informed consent if they met all study eligibility criteria including less than 2 weeks of abstinence or confinement at time of study entry. This criterion was included to reduce variability in rates of depressive symptoms in relation to duration of abstinence. All participants were assessed, typically within 2 weeks of treatment entry, using a demographic instrument, Structured Interviews Diagnostic Instrument for Children and Adolescents-IV (DICA-IV) for psychiatric disorders and Composite International Diagnosis Interview for Diagnostic and Statistical Manual of Mental Disorders (DSM) Substance Use Disorders and BDI.

This study extended the literature by providing data on psychometric properties of the BDI in adolescent substance-abusing populations. The BDI was found to have good internal consistency (Cronbach’s α = 0.87) comparable to values reported in adolescent psychiatric sample (0.76-0.95; Beck et al., 1988). Five BDI factors accounted for 60% of the variance, with one representing Negative Cognition (Blame, Satisfaction, Failure, Decision, Tired, Effort Myself, Sad, and Future) alone accounted for 30%. These factors were similar to those reported by (Bennett et al., 1997; Beck & Lester, 1973). In addition, three of these factors: Negative Cognition, Negative Affect, and Negative Self-perception, correctly discriminated between those with and without MDD. Therefore, higher scores on these items (particularly Negative Cognition items) may warrant closer attention when screening for MDD. The two factors Nutrition (appetite, weight) and Pessimism (worry and suicidal ideation) did not discriminate between MDD and no-MDD and had lower internal
consistency, suggesting that their clinical significance may be nonspecific and independent of MDD. However, it should be noted that this is an exploratory analysis, and the temporal stability of the measure is not yet established within this population. Thus, conducting a Confirmatory Factor Analysis with a new sample, as well as test-retest data, would be helpful in further validating the psychometric properties of the BDI in substance-abusing adolescents.

Cutoff (≥12) on BDI may be useful as a screen for identifying adolescents in clinical populations of adolescents with Substance Use Disorder. Those patients with scores higher than the cutoff of ≥16 or ≥17 may represent a higher risk psychiatric sample that may benefit from specialist psychiatric assessment because of the added risk of association with anxiety disorders and potential need for psychotropic medications. However, patients who endorse suicidal ideation, especially in the context of a plan or serious recent attempt, would warrant additional attention, independent of their total BDI scores. Therefore, the authors recommended retaining all 21 items of the BDI to comprehensively evaluate the extent of depressive symptomatology and guide clinical interventions.

Reliability

The Beck Depression Inventory (BDI) (A.T. Beck et al., 1961) is a widely used self-report measure of depressive symptoms in adults and adolescents aged 13 years and older and is administered across a wide range of psychological disorders. A meta-analysis of responses to the BDI suggests that it exhibits good internal consistency and acceptable test-retest reliability in both clinical and nonclinical samples. Furthermore, BDI responses adequately discriminated depressed patients from both control participants and from individuals with anxiety disorders [A.T. Beck et al., 1988]; however, only a few studies have examined the psychometric properties of the BDI in samples seeking treatment for anxiety disorders. For example, Snyder et al. (2000) reported that the BDI correlated more strongly with a measure of depression than with measures of anxiety, worry, or quality of life in an elderly (age 60–80 years) sample seeking treatment for generalized anxiety disorder (GAD). Coles et al. (2001) reported that BDI scores correlated more strongly with other measures of depression than with measures of either social anxiety or anxiety sensitivity among patients with social anxiety disorder.

Studies such as those of Synder et al. (2000) and Coles et al. (2001) are essential to evaluate the psychometric properties of the BDI, as the assumption that these properties are invariant across populations is not tenable (Kazdin, 1998); however, Synder et al., examined
only elderly patients with GAD, and the psychometric properties of the BDI in a non-elderly sample of adults have not been evaluated. Furthermore, Synder and colleagues relied exclusively on self-report measures, and it is necessary to incorporate multiple psychometric evaluation (Kazdin, 1998).

In the light of the above assertion, more recently Weeks & Heimberg (2005) conducted an evaluation of the psychometric properties of the Beck Depression Inventory in a non-elderly adult sample of patients with generalized anxiety disorder. The clinical sample was comprised of 48 patients who were assigned a principal diagnosis of GAD following a semistructured interview with the Anxiety Disorder Interview Schedule for DSM-IV, Lifetime Version (ADIS-IV-L) (DiNardo et al., 1994). According to DSM-IV (American Psychiatric Association, 1994), GAD cannot be diagnosed if it occurs exclusively during the course of a depressive episode; however, a study (Chelminski & Zimmerman, 2003) demonstrated that individuals who met criteria for GAD only during a major depressive episode were not distinguishable in their clinical, psychosocial, family history, and demographic characteristics from patients who met criteria for GAD only during a major depression. Moreover, both of these groups differed from depressed patients without GAD. On the basis of these findings, 4 patients whose GAD occurred only in the context of a major depressive episode were included in the analyses. The authors found that the BDI exhibited good internal consistency in the clinical sample. Patients obtained more extreme scores on the BDI than did control participants, and patients with a comorbid mood disorder. Patients’ BDI scores correlated significantly more strongly with a clinician-administered measure of depression than with self-report measures of generalized anxiety, worry, social anxiety, or anxiety sensitivity, but not more strongly than with a clinician-administered measure of anxiety. BDI scores correlated positively with self-reported disability and negatively with life satisfaction. Overall, the BDI demonstrated good psychometric properties in this non-elderly adult sample of patients with GAD.

The current findings are encouraging for researchers using the BDI to assess depressive symptoms in non-elderly adults with GAD and lend credence to the validity of previous symptoms in similar samples. Furthermore, given the strong correlation (r=.93) reported between the BDI and the Beck Depression Inventory, second edition (BDI-II) (A.T. Beck et al., 1996), the present findings lend indirect support to the psychometric properties of the BDI-II among non-elderly adult patients with GAD.
Basker, Moses, Russell, Swamidhas, & Russell (2007) assessed the psychometric properties of Beck Depression Inventory for adolescent depression in a primary-care paediatric setting in India. In India, pediatricians are often the first step in the pathway to mental health problems including depression and thus paediatrician's role in identifying depression in these adolescents become indispensable. The prevalence of depression among adolescents among primary-care paediatric care settings in India is 11.2% (Nair, Paul, & John, 2004) and recognizing adolescent depression becomes a responsibility of paediatricians (Olson, Kelleher, Kemper, Zuckerman, Hammond, & Dietrich, 2001). However, up to 50% of depressed adolescents are not diagnosed in primary-care settings (Simon & VonKroff, 1995). Although several depression screening instruments are available, their psychometric properties in a primary-care paediatric setting in the Indian context has not been studied. Beck Depression Inventory (BDI) has excellent psychometric properties across clinical and non-clinical populations in other countries (Beck, Steer, & Garbib, 1998). BDI has also been extensively validated among the adolescent population elsewhere (Osman, Kopper, Barrrios, Gutierrez, & Bagge, 2004). 181 adolescents attending 3 schools were administered a back translated Tamil version of BDI by a paediatrician to evaluate its psychometric properties along with Children's Depression Rating Scales (CDRS-R) for convergent validity. The authors found that in addition to the adequate face and content validity, BDI has very good internal consistency (α=0.96), high convergent validity with Children’s Depression Rating Scale (CDRS-R) (r = 0.72; p = 0.001), and high discriminant validity with Impact of Event Scale (IES) (r = 0.26; p = 0.23). The BDI proved to be a psychometrically sound measure for use by paediatricians in a primary care setting in India. The possibility of screening for depressive disorders through the use of BDI may be helpful in identifying probable cases of the disorder among adolescents.

Validity

The face and content validity of BDI as a measure for depression has long been established by consensus among clinicians (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and it has been shown that the BDI items are consistent with six of the nine Diagnostic and Statistical Manual, Edition III (DSM-III) categories of symptom clusters of depression (Winter, Steer, Jones-Hick, & Beck, 1999). The content validity of BDI in this study (Basker et al., 2007) was as good as reported elsewhere (Groth-Marnat, 1990).
To examine the convergent and discriminant validity of the BDI, patients' scores on the BDI were correlated with their scores on the other measures. The BDI was significantly correlated ($P<.003$) with the Hamilton Rating Scale for Depression. A Bonferroni correction (.05/5=.01) was applied in examining discriminant validity. Of the five discriminant measures, the BDI was significantly correlated only with the Hamilton Anxiety Rating Scale ($P < .003$). The relationship between the BDI and the Hamilton Anxiety Rating Scale was no longer significant (partial $r = .21, P = .21$) upon controlling for depression (HRSD-24 scores); however, the relationship between the BDI and the Hamilton Rating Scale for Depression also was no longer significant (partial $r = .22, P = .18$) when controlling for Hamilton Anxiety Rating Scale scores. In addition, patient BDI scores were significantly positively correlated with functional disability ($r = .47, P<.001$) and significantly negatively correlated with self-perceived life satisfaction ($r = -0.51, P<.001$) [cf. Weeks & Heimberg, 2005].

Another study (Basker et al., 2007) also made an attempt to assess the validity of BDI. Out of the 181 adolescents interviewed, sample full data was available for only 178 participants. The mean (sd) age of the adolescents was 15.6 (0.6) with a range of 14 to 17 years. There was a mild over representation of boys (N=105) than girls (N=73) in the sample. The mean (sd) BDI score was 13.4 (8.3) with a range of 0 to 42 and CDRS-R score was 27.5 (8.2) with a range of 17 to 54 among the participants identified as having a depressive disorder (N=11); the most prevalent diagnostic group had mild, moderate or severe depression depressive episode with somatic symptoms (N=5), followed by brief depressive reaction (N=3), mixed anxiety-depression (N=2) and finally grief (N=1).

None of the 21 items was assigned a score of 0 by more than half of the adolescents with depression in a study suggesting the Content validity was appropriate to their morbid state. The convergent validity between BDI and CDRS-R, calculated with Pearson correlation was also high ($r=0.72$) and significant at the 0.001 level. There was a moderate concordance rate between the BDI cut-off score of $\geq22$ and reference standard of ICD-10 diagnosis (54.5%) in identifying depression among the adolescents. While determining the criterion validity, the correlation between the diagnosis of cases based on ICD-10 by the psychiatrist and self-rated BDI score was low but was at 0.05 level of significance ($r=0.15, p = 0.04$). Eleven of the 178 adolescents who received psychiatric assessment fulfilled criteria for depressive disorders and thus more than three-quarter of the patients failed to meet the ICD-10 criteria for depressive disorders. Among the 178 participants, the paediatrician with BDI recognized 81.8% of participants as depressed and yet 45% of patients labeled as
depressed by the paediatrician based on BDI score were not cases of depression according to ICD-10 criteria. It is interesting to note that a large proportion of adolescents were not found to be suffering from any other specific psychiatric disorder by ICD-10 (N=170) or BDI (N=65). Other disorder noted were specific learning disorder (N=2), Obsessive compulsive disorder (N=1), Dhat syndrome (N=1), Tension head ache (N=1) and 40% of these disorders were also picked as depression by the BDI. Divergent validity calculated by correlating BDI scores to the IES showed non-significant association (r=0.23; p=0.26) demonstrating that the BDI discriminates depression from other psychiatric disorders like PTSD.

Conclusion

The Beck Depression Inventory (BDI) (Beck et al., 1961) is a self report measure for depression which has been widely used in clinical and research settings since its publication. Changes in the conception of depression since the first version of the BDI was developed, led to the need for modifications in the scale. Therefore, the authors developed the BDI-II, changing the content of several items (Beck et al., 1996). However, interest remains in the first version of the BDI, as it is still widely used, and recent clinical trials and meta-analyses are largely based on changes in BDI scores (Hellerstein et al., 2008; Knekt et al., 2008; Berlanga & Flores-Ramos, 2006). The BDI has been translated into many languages, and has shown excellent psychometric properties and good qualities as a screening method for identifying the possible presence of a clinical diagnosis of depression (Lasa et al., 2000).

In sum, it can be stated that the Beck Depression Inventory (BDI) has demonstrated excellent psychometric properties and good performance as a screening measure in different contexts and languages. The psychometric properties of BDI confirm it as a valid and reliable measure of depressive symptomatology.

Procedure

The data was collected by administering the following standardized tools. The tests were administered in a uniform sequence as follows:

1) Cattell’s Culture Fair Test, Scale 2, Form A
2) Beck Depression Inventory
3) Cattell’s Culture Fair Test, Scale 2, Form B
Several groups consisting of 10-12 subjects in each group, were formed to collect the data. Subjects were provided, initially, Cattell’s Culture Fair Test, Scale 2, Form A, for 12½ minutes (as advocated in the manual) followed by the ten minutes interval, Beck Depression Inventory was administered and it was made clear to subjects that there is no time limit but they have to complete the inventory as soon as possible by giving their immediate response to every item. After the completion of Beck Depression Inventory, one full day interval was given to the subjects and the next day Cattell’s Culture Fair Test, Scale 2, Form B was administered on the same subjects. The scores on Form B were used for final analysis. Form A was used as practice test. All of them were assured that the information given by them would be kept confidential and would be used for research purpose only.

Scoring of the test

The tests were scored strictly in accordance with the scoring procedures as advocated by the authors. Manual scoring stencil was used to score the Cattell’s Cutlure Fair Test, Scale 2, Form A and B. The scoring was done to obtain scores on intelligence (mental age). Beck Depression Inventory was scored simply by noting the score rated on respective items, in order to examine the prevalence (presence or absence) of the following depressive symptoms:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Symptom</th>
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</tr>
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<tbody>
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<tr>
<td>11.</td>
<td>Agitation</td>
<td>12.</td>
<td>Loss of interest</td>
</tr>
<tr>
<td>13.</td>
<td>Indecisiveness</td>
<td>14.</td>
<td>Worthlessness</td>
</tr>
<tr>
<td>15.</td>
<td>Loss of energy</td>
<td>16.</td>
<td>Changes in sleeping pattern</td>
</tr>
<tr>
<td>17.</td>
<td>Irritability</td>
<td>18.</td>
<td>Changes in appetite</td>
</tr>
<tr>
<td>19.</td>
<td>Concentration difficulty</td>
<td>20.</td>
<td>Tiredness or fatigue</td>
</tr>
<tr>
<td>21.</td>
<td>Loss of sex interest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Analysis

For the purpose of analysis, in the first instance, the participants were classified into two categories, referring to low and high mental age using Cattell’s Culture Fair Intelligence Test, Scale 2: Form B. Further, the responses of the participants in two categories were analyzed in the context of the presence or absence of a depressive symptom (on each item of Beck Depression Inventory). This was done separately for male and female participants.

Furthermore, in order to ascertain the association between developmental level as revealed by mental age and prevalence (absence/presence) of depressive symptom as measured by each item of the Beck Depression Inventory, $\chi^2$ was employed. This was done separately for male and female participants because the past research has shown that gender is an important parameter of psychopathology. Gender difference in depression is among the most robust of findings in psychopathological research.