CHAPTER THREE

METHODOLOGY

In the previous chapter the theoretical concepts underlying the research findings have been unfolded and the status of the presently available studies in this area has been delineated. In the present chapter the methodology adopted in the study to reach research objectives has been described.

3.1 Tools used:

1. PERSONAL INFORMATION SCHEDULE (Appendix A)

The information schedule prepared included information on age, sex, religion and the standard in which the adolescent is studying. It also included information regarding number of family members and their relationship to the adolescents, which give an impression of the family type, i.e., whether nuclear, joint or extended type to which one belongs. Moreover information regarding whether parents are alive, expired or separated and information about parents' occupation were also included in the information schedule.

Written informed consents (from both child and at least one of the parents) were also included in the second portion of Personal Information Schedule. Personal information schedule and consent forms are given in Appendix A.

2. CHILD BEHAVIOUR QUESTIONNAIRE (CBQ, proforma-B)

- (Rutter, 1967) (Appendix B)

Description of the tool:

This scale consists of two parts Proforma A and Proforma B. Proforma B was used in the current study. This consists of 26 items relating to common behaviour and emotional
problems as seen in school setting. The items describe behaviour against which the teacher is asked to indicate whether each description 'does not apply', 'applies somewhat' or 'definitely applies' to the child.

**Reliability and Validity:**

This scale has been previously used as screening tool in different populations and cultures and has consistently provided high reliability and validity. High degree of test-retest reliability (0.89) over a 3-month period has been reported. Also inter-rater reliability of 0.72 to discriminate between children of any child psychiatric clinic and children in the general population and to differentiate between many types of psychiatric disorders was found (Rutter, 1967; Rutter et al., 1975)

Sufficient validity has been reported. Inter-correlation between the items in the scale and the individual items which differentiated high score on the scale and factor structure of the questionnaire in each of the two populations has been good. Such a comparison is found in Islet Wight's Study (Rutter et al., 1970). It showed that the internal characteristics of the scale in one sample are closely similar to those in the other sample studied.

Rutter, 1967, found that a cut-off score of 9 or more had the discriminative value for the presence of psychiatric disorders.

This scale has also been used in various studies in Indian population, for screening psychological disturbances of children (John, 1980; Rozario, 1988; Biswas, 1995; Shenoy, 1992; Banerjee, 1997; Kohil et al., 2007). All the studies used 9 as their cutoff point for screening purpose, i.e., the child having score 8 or below considered as not having any psychiatric problems. The current study also considered 9 as cut off point.

**Administration:**

This scale assesses psychopathology on the basis of child's classroom behaviour and is rated by teacher.
Scoring and interpretation:
A cut off score of 9 has discriminative value, any child scoring 9 or more is classified as a problem child. The child who was rated below 9 was selected for subjects in normal group.

Selection of the tool:
In the present study Child Behaviour Questionnaire (CBQ) is used to screen cut normal adolescents. CBQ, proforma-B is given in Appendix B

3. **STANDARD PROGRESSIVE MATRICES** (SPM) - (Raven et al., 1992)

Description of the tool:
It is a non-verbal culture free intelligence test. It assesses a person’s present clarity of observation and level of intellectual development. A person’s total score provides an index of his intellectual capacity with relatively little influence from the cultural environment in which the individual grew up. The scale consists of 60 problems divided in to five sets, or series, of diagrammatic puzzles. Each puzzle has a part missing, which the person taking the test has to find among the options provided. It is designed to be used with children as well as adults.

Reliability and Validity:
The majority of the split-half internal consistency coefficients exceed 0.90 having a modal value of 0.91. The test-retest reliabilities ranging from 0.83 to 0.93, with the higher values being associated with younger subjects. In case of predictive validity, coefficients reported in studies with English and non-English speaking children and adolescents generally range up to 0.70. In terms of content validity, it has been reported to have good to excellent discriminative power for most items. The SPM has high loading on ‘g’ or general factor as described by Spearman (Raven et al., 1992). In present study norms developed by Ojha (1992) in Indian context (Delhi north zone) was used.
Administration:

This is a self administered intelligence test. There is time limit to complete it.

Scoring and Interpretation:

A person's total score is compared with the percentage of a number of reference groups of the same birth cohort. For practical purpose, it is convenient to consider certain percentages of the population and to group people's score accordingly. In this way, it is possible to classify a person according to the score obtained as different grades.

Selection of the tool:

In the present study Standard Progressive Matrices (SPM) is used to assess the intellectual ability of the respondents to screen out adolescents with below average intelligence. Any adolescent whose score is below 25th percentile is excluded from the study.

4. JUNIOR EYSENCK'S PERSONALITY QUESTIONNAIRE (JEPQ)
   - (Eysenck, 1975) (Appendix C)

Description of the tool:

Junior EPQ is a tool to measure personality dimensions of children with age range of 7 to 15 years. For such purpose JEPQ was constructed beside the adult EPQ. JEPQ consists of 81 items which assess the three major dimensions of personality: Psychoticism (P; 17 items), Extraversion (E; 24 items), and Neuroticism (N; 20 items). In addition the questionnaire contained the 20 items Lie (L) scale, which is a measure of social desirability. It is widely used throughout the world in different cultural settings. In Indian context a study (Dutta & Basu, 2006) was conducted to develop norms of JEPQ (adolescents ranges from 12 to 15 years) (Table 3.4). The obtained Indian norms (Dutta and Basu, 2006) of four scales of the JEPQ for boys are girls were found to be comparable to the western standardized norms (Eysenck & Eysenck, 1976) (Table 3.5).
Reliability and Validity:

The reliability and validity of the tool have been established. Test-retest reliabilities for younger children (7, 8 and 9 years of age) are rather low. From the age of 10 years onwards, reliabilities usually about 0.6 and frequently above 0.7 (Eysenck & Eysenck, 1976). The test-retest reliabilities of the JEPQ are given below:

Table 3.1: JUNOR EPO: Test retest reliabilities, one month intervening

<table>
<thead>
<tr>
<th>Age</th>
<th>Sample size</th>
<th>P</th>
<th>E</th>
<th>N</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>12 – 14</td>
<td>190</td>
<td>0.69</td>
<td>0.78</td>
<td>0.75</td>
</tr>
<tr>
<td>Girls</td>
<td>11 – 14</td>
<td>341</td>
<td>0.61</td>
<td>0.78</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Table 3.2: JUNOR EPO: Test retest reliabilities, six month intervening

<table>
<thead>
<tr>
<th>Age</th>
<th>Sample size</th>
<th>P</th>
<th>E</th>
<th>N</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>13 – 15</td>
<td>437</td>
<td>0.72</td>
<td>0.58</td>
<td>0.72</td>
</tr>
<tr>
<td>Girls</td>
<td>13 – 15</td>
<td>380</td>
<td>0.54</td>
<td>0.79</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Table 3.3: JUNOR EPO: Internal consistency reliabilities

<table>
<thead>
<tr>
<th>Age</th>
<th>Sample size</th>
<th>P</th>
<th>E</th>
<th>N</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>13 – 15</td>
<td>619</td>
<td>0.72</td>
<td>0.80</td>
<td>0.85</td>
</tr>
<tr>
<td>Girls</td>
<td>13 – 15</td>
<td>535</td>
<td>0.66</td>
<td>0.75</td>
<td>0.85</td>
</tr>
</tbody>
</table>
### Table 3.4: Norms of 4 scales of the JEPO for boys and girls (Dutta & Basu, 2006)

<table>
<thead>
<tr>
<th>SCALES</th>
<th>Boys (N= 148)</th>
<th>Girls (N= 145)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>P</td>
<td>3.84</td>
<td>2.31</td>
<td>2.79</td>
</tr>
<tr>
<td>E</td>
<td>17.57</td>
<td>3.17</td>
<td>17.22</td>
</tr>
<tr>
<td>N</td>
<td>3.05</td>
<td>3.77</td>
<td>9.25</td>
</tr>
<tr>
<td>L</td>
<td>9.07</td>
<td>3.89</td>
<td>14.77</td>
</tr>
</tbody>
</table>

### Table 3.5: Standardized norm of JEPO ((Eysenck & Eysenck, 1976)

<table>
<thead>
<tr>
<th>AGE</th>
<th>P</th>
<th>E</th>
<th>N</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>B</td>
<td>11</td>
<td>3.81</td>
<td>2.82</td>
<td>18.46</td>
</tr>
<tr>
<td>O</td>
<td>12</td>
<td>4.70</td>
<td>3.23</td>
<td>18.53</td>
</tr>
<tr>
<td>Y</td>
<td>13</td>
<td>4.69</td>
<td>2.98</td>
<td>18.99</td>
</tr>
<tr>
<td>S</td>
<td>14</td>
<td>5.19</td>
<td>3.26</td>
<td>19.15</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>4.87</td>
<td>3.25</td>
<td>18.95</td>
</tr>
<tr>
<td>G</td>
<td>11</td>
<td>1.95</td>
<td>1.64</td>
<td>17.56</td>
</tr>
<tr>
<td>I</td>
<td>12</td>
<td>2.27</td>
<td>1.94</td>
<td>18.21</td>
</tr>
<tr>
<td>R</td>
<td>13</td>
<td>2.54</td>
<td>2.34</td>
<td>18.65</td>
</tr>
<tr>
<td>L</td>
<td>14</td>
<td>3.02</td>
<td>2.59</td>
<td>19.10</td>
</tr>
<tr>
<td>S</td>
<td>15</td>
<td>2.75</td>
<td>2.25</td>
<td>18.64</td>
</tr>
</tbody>
</table>
Administration:
JPQ is a self-administered questionnaire and instructions are given in the beginning of the questionnaire. There are two response categories ‘yes’ and ‘no’. The subject was required to select one of the two alternatives for each item. It is a fixed response questionnaire. There is no time limit to complete it. The average time taken by the subjects to complete the questionnaire was 20 to 30 minutes. The subject was instructed to answer each and every item.

Scoring and interpretation:
Each item is dichotomous and contains either ‘Yes’ or ‘No’ response. For some of the items, ‘Yes’ marking get ‘1’ score and for some, ‘No’ marking get ‘0’ score. Each dimension was scored by summing the score of respective items.

Selection of the tool:
In the present study JEPQ was used to assess the different personality dimensions of the adolescents in 2 clinical groups as well as normals. The previous researchers (Dutta & Basu, 2006) administered this scale to the same ethnic group being inquired currently and its applicability was found to be satisfactory. JEPQ is given in Appendix C

5. HOME ENVIRONMENT INVENTORY (HEI) - (Misra,1989) (Appendix D)

Description of the tool:
Home Environment Inventory can be used to measured children’s perception of parental childrearing behaviours i.e. home environment. It has 100 items belonging to 10 dimensions of home environment- control, protectiveness, conformity, punishment, reward, deprivation of privileges, social isolation, rejection, neglect and permissiveness.

Operational definitions of these dimensions are as follows:-
A. **Control**: It indicates “autocratic atmosphere in which many restrictions are imposed on children by parents in order to discipline them”.

B. **Protectiveness**: It implies “prevention of independent behaviour and prolongation of infantile care”.

C. **Punishment**: It includes “physical as well as affective punishment to avoid occurrence of undesirable behaviour”.

D. **Conformity**: It indicates “parents directions, commands or orders with which child is expected to comply by action”. It refers to “demands to work according to parent’s desires and expectations.”

E. **Social isolation**: It indicates “use of isolation from beloved persons except family members for negative sanctions”.

F. **Reward**: It includes “material as well as symbolic rewards to strengthen or increase the probability of desired behaviour”.

G. **Deprivation of privileges**: It implies “controlling children’s behaviour by depriving them of their rights to seek love, respect and childcare from parents”.

H. **Nurturance**: It indicates “existence of excessive unconditional physical and emotional attachment of parents with the child. Parents have a keen interest in and love for the child”.

I. **Rejection**: It implies: “conditional love recognizing that the child has no right as a person, no right to express his feeling, no right to uniqueness and no right to autonomous individual”.


J. **Permissiveness:** It includes “provision of opportunities to child to express his views freely and act according to his desire with no interference from parents”.

**Reliability and Validity:**

This scale was administered to 113 students (54 boys and 59 girls) studying in intermediate classes of five schools. Split half reliabilities were worked out separately for all the ten dimensions of home environment. The split half reliabilities for ten dimensions of home environment are as follows:

Table 3.6 Split half reliability coefficients for ten dimensions of home environment as measures by HEI.

<table>
<thead>
<tr>
<th>Inventory dimension</th>
<th>Reliability Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Control</td>
<td>0.879</td>
</tr>
<tr>
<td>B. Protectiveness</td>
<td>0.748</td>
</tr>
<tr>
<td>C. Punishment</td>
<td>0.947</td>
</tr>
<tr>
<td>D. Conformity</td>
<td>0.866</td>
</tr>
<tr>
<td>E. Social isolation</td>
<td>0.870</td>
</tr>
<tr>
<td>F. Reward</td>
<td>0.875</td>
</tr>
<tr>
<td>G. Deprivation of Privileges</td>
<td>0.855</td>
</tr>
<tr>
<td>H. Nurturance</td>
<td>0.901</td>
</tr>
<tr>
<td>I. Rejection</td>
<td>0.841</td>
</tr>
<tr>
<td>J. Permissiveness</td>
<td>0.726</td>
</tr>
</tbody>
</table>

98
The inventory has been found to possess content validity. Criterion related validity could not be established because of the lack of appropriate external criteria.

Administration:

Home Environment Inventory is a self-administered questionnaire and instructions are given in the beginning of the questionnaire. Adolescents should be asked to put 'X' mark on any cell indicating their perception of the frequency with which a particular behavior has been exhibited by their parents. They should feel assured about the confidential nature of their responses. There is no time limit to complete it.

Scoring and interpretation:

There are five cells against every item and each cell indicates the frequency of occurrence of a particular behaviour. The five cells belong to five responses namely, ‘mostly’, ‘often’, ‘sometimes’, ‘least’, and ‘never’. The dimension to which a particular item belongs has been indicated by alphabets near the serial number of the items. 4 marks was assigned to ‘mostly’, 3 marks to ‘often’, 2 marks to ‘sometimes’, 1 mark to ‘least’ and ‘0’ to ‘never’ responses. The marks assigned to A, B, C, D, E, F, G, H, I, and J dimensions statements on every page were counted and then added so as to get total score for each of the ten dimensions of HEI.

Selection of the tool:

This inventory has been used in present study to measures adolescent’s perception of parental child rearing behaviour, i.e., different dimensions of home environment in 2 clinical groups as well as in normals. Previous researchers (Das & Basu, 2003; Das & Basu, 2006; SinhaRoy, 2005) administered this scale to the same ethnic group being inquired currently and were found to be satisfactory. Home environment Inventory is given in Appendix D.
6. **SCHOOL ENVIRONMENT INVENTORY (SEI)** -

(Misra, 2002) (Appendix E)

**Description of the tool:**

It was designed to measure psycho-social climate of school as perceived by the pupils. It provides a measure of the quality and quantity of the cognitive, emotional and social support that has been available to the students during their school life in terms of teacher pupil interactions. SEI has 70 items belonging to six dimensions of school environment. Operational definitions of these dimensions are as follows: -

A. **Creative stimulation:** It refers to “teacher’s activities to provide conditions are opportunities to stimulate creative thinking”.

B. **Cognitive encouragement:** It implies “teacher’s behaviour to stimulate cognitive development of students be encouraging his actions or behaviours”.

C. **Permissiveness:** It indicates “a school climate in which students are provided opportunities to express their views free and act according to their desires with no interruption from teachers”.

D. **Acceptance:** It implies “a measure teachers accept the feelings of students in a non-threatening way”.

E. **Rejection:** It refers to “a school climate in which teachers do not accord recognition to students’ rights to deviate act freely and be autonomous persons”.

F. **Control:** It indicates “autocratic atmosphere of the school in which several restrictions are imposed on student’s to discipline them”.
Reliability and Validity:

This scale was administered to 113 students (54 boys and 59 girls) studying in intermediate classes of five schools. The split half reliabilities for various dimensions of the school environment are as follows: Table 3.7

Table 3.7: The split half reliabilities coefficients of six dimensions of the school environment as measures by SEI.

<table>
<thead>
<tr>
<th>Scale dimensions</th>
<th>Reliability coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Creative stimulation</td>
<td>0.919</td>
</tr>
<tr>
<td>B. Cognitive encouragement</td>
<td>0.797</td>
</tr>
<tr>
<td>C. Acceptance</td>
<td>0.823</td>
</tr>
<tr>
<td>D. Permissiveness</td>
<td>0.673</td>
</tr>
<tr>
<td>E. Rejection</td>
<td>0.781</td>
</tr>
<tr>
<td>F. Control</td>
<td>0.762</td>
</tr>
</tbody>
</table>

The inventory has been found to possess content validity. Because of lack of appropriate external criteria criterion-related validity could not be established.

Administration:

School Environment Inventory is a self-administered questionnaire and instructions are given in the beginning of the questionnaire. Adolescents should be asked to put ‘X’ mark on any cell indicating their perception of the frequency with which a particular behavior has been exhibited by their teachers. Students should feel assured about the confidential nature of their responses. There is no time limit to complete it.
Scoring and interpretation:

There are five cells against every item and each cell indicates the frequency of occurrence of a particular behaviour. The five cells belong to five responses namely, ‘always’, ‘often’, ‘sometimes’, ‘rarely’, and ‘never’. The dimension to which a particular item belongs has been indicated by alphabets near the serial number of the items. 4 marks was assigned to ‘always’, 3 marks to ‘often’, 2 marks to ‘sometimes’, 1 mark to ‘rarely’ and ‘0’ to ‘never’ responses. The marks assigned to A, B, C, D, E, and F dimensions statements on every page were counted and then added so as to get total score for each of the six dimensions of SEI.

Selection of the tool:

This inventory has been used in present study to appraise the perception of the adolescents of different dimensions of school environment in 2 clinical groups as well as in normals. As the previous researchers (Das & Basu, 2006; SinhaRoy, 2005) administered this scale to the same ethnic group being inquired currently and its applicability was found to be satisfactory. School environment Inventory is given in Appendix E

3. **STRENGTH AND DIFFICULTIES QUESTIONNAIRE (SDQ)**

- (Godman, 1997) (Appendix F)

Description of the tool:

It is a brief behavioural screening questionnaire for children and adolescents about 3 to 16 year olds (Goodman, 1997). It exists in several versions to meet the needs of researchers, clinicians and educationalists. All versions of the SDQ ask about 25 attributes, some positive and others negative. Among the 25 items, 20 items assess psychopathology of internalizing and externalizing disorders and other five items assesses prosocial behaviours. These 25 items are divided between five scales:
• Emotional symptoms Scale (5 items)
Emotional symptoms are characterized by subjective distress in the child. The symptoms are excessive worry, fearfulness, sadness, social withdrawal and somatic complaints (such as headaches, stomach-aches or sickness).

• Conduct Problems Scale (5 items)
Conduct problems may be described as repetitive and persistent pattern of dissocial, aggressive and defiant behaviours. The problems include aggressive behaviours, temper tantrums, severe disobedience, stealing, and repeated lying.

• Hyperactivity - Inattention Scale (5 items)
This syndrome consists of restlessness, over activity, impulsiveness, short attention span, lack of concentration and distractibility.

• Peer Problems Scale (5 items)
Peer difficulties may be one of the important indicators of problem severity. Problems includes withdrawn from peer group, having no good friends, bullying by other children and preference for adults than with people of same age.

• Prosocial Scale (5 items)
Prosocial behaviours refer to acts of helping that have no obvious benefit to the person who helps. Prosocial behaviours includes nice to others, share the things with others, helpful if someone is hurt, upset or feeling ill, kind to younger child, volunteer to help others.

Prosocial behaviour has been taken as a criterion variable for the following reasons:

1) According to Eysenck's description of 'characteristic pattern' of 'Psychosis' (P) (such as, cruel, lacking in feeling and empathy, insensitivity, hostile to others and like) (Eysenck & Eysenck, 1985). So it could be presumed that role of 'P' in the
development of prosocial behaviours would be in opposite direction of its role in the development of psychopathology.

2) It may also be presumed that how the combination of different dimensions of personality, home environment, and school environment contribute to the development of psychopathology would be different from how these variables contribute to the development of prosocial behaviours.

The first above mentioned four scales except prosocial scores, are added together to generate a total difficulties score (TDS) (based on 20 items). The TDS can be used as well as sub scales scores to distinguish between cases and noncases (Goodman & Scott, 1999). This self-report version is suitable for young people aged around 11 to 16. The SDQ is available in over 30 languages and is being widely used in epidemiological, developmental and clinical research, as well as in routine clinical and educational practice. The Bengali adaptation of the SDQ (Goodman et al, 2000) has been used extensively in Bangladesh.

Reliability and Validity:

The level of chance-corrected agreement between SDQ prediction and an independent clinical diagnosis was substantial and highly significant (Kendall’s tau between 0.49 and 0.73; p<0.001). A “probable” SDQ prediction for any given disorder correctly identified 81-91% of the children who definitely had that clinical diagnosis (Goodman et al, 2000). The symptoms of psychopathology were validated against DSM-IV criteria (Goodman, 2001). Results obtained from a study conducted by Goodman (2001) confirmed the predicted five factor structure (emotion, conduct, hyperactivity, peer and prosocial). Internalizing and externalizing scales were relatively ‘uncontaminated’ by one another. Reliability was generally satisfactory, whether judged by internal consistency (mean Cronbach’s alpha: 0.73), cross information correction (mean: 0.34), or retest stability after 4–6 months (mean: 0.62). SDQ score above the 90 percentile predicted a substantially raised probability of independently diagnosed psychiatric disorders (mean odds ratio: 15.7 for parent scales, 15.2 for teacher scale, and 6.2 for youth scales).
The SDQ functions as well as the Rutter questionnaires (Elander and Rutter, 1995) and as good as the Child Behaviour Checklist (Achenbach, 1991) at detecting conduct and emotional problems and better than the CBCL at detecting inattention and hyperactivity (Goodman & Scott 1999). The self-report version has also been shown to discriminate satisfactorily between community and clinic samples.

**Administration:**

SDQ is a self-administered questionnaire. The instructions are provided in the beginning of the questionnaire. For each items there are three response categories. The subject is required to select one of the three alternatives for each item. There is no time limit. The subject is required to answer each and every item on the basis of their experiences over the last six months.

**Scoring and interpretation:**

The 25 items in the SDQ comprise of 5 items each. It is usually easiest to score all 5 scales first before working out the total difficulties score. ‘Somewhat true’ is always scores as 1, but the scoring of ‘not true’ and ‘certainly true’ varies with the items. For each of the 5 scales the score can be range from 0 to 10 if all 5 items were completed. The total difficulties (SDQ) score is generated by summing the scores from all the scales except the prosocial scale. The resultant score can range from 0 to 40.

**Selection of the tool:**

This questionnaire has been used in present study as an index of psychopathological symptoms among the adolescents in 2 clinical groups as well as in normals. The previous researchers (Priya, 2004; Goyal, 2006) administered this scale in Indian context. Dutta & Basu (2006) administered the scale to the same ethnic group being inquired currently and its applicability was found to be satisfactory. SDQ is given in Appendix F.
3.2 Design of the Study:

The study was cross sectional and carried out in two phases:

A) Pilot study
B) Main Study

3.2.1 A) The Pilot Study

Objectives of the pilot study

1) To familiarize the researcher with the administration of the scales, scoring and interpretation.

2) To decide the ways to diagnose subjects of clinical groups reliably.

Procedure of the Pilot Study:

Researcher contacted Psychiatrists and Clinical Psychologists of different ‘Child and Adolescents Guidance Clinics’ of Kolkata and explained the nature of the study to them. With their cooperation, data were collected using all the tools from 10 patients (5 males and 5 females) with internalizing disorders, 10 patients (5 males and 5 females) with externalizing disorders.

Results of the Pilot Study:

1. The researcher did not find any difficulty in administrating the scales.

2. It was decided that one Psychiatrist and one trained Clinical Psychologist would diagnosed each prospective subjects of the clinical groups independently according to DSM IV criteria. For the cases where diagnosis would be confirmed by both of them, the subject would be
taken for the final study. Here Psychiatrist means one medical person with M.B.B.S. and M.D. degrees in Psychiatry. Trained Clinical Psychologist means one with M.A./M.Sc. degree in Psychology or Applied Psychology and M.Phil in Medical and Social Psychology or Clinical Psychology from recognized institutes.

3.2.1 B) The Main Study:

Data collections for normal group:
For the collection of data from normal subjects, principals of different schools (English medium) in 3 different localities of Kolkata were approached. The researcher explained the nature of the research in the parents' and teachers' meeting. Final data was collected from those students whose parents gave consents and who themselves were also willing. In this way 150 prospective subjects, including 80 boys and 70 girls were approached. Confidentiality was assured. Out of 150 prospective subjects, 100 (50 males and 50 females) were selected for sample of normal group on the basis of certain inclusion and exclusion criteria. These criteria are as follows:

Inclusion criteria:

- Age between 12 to 15 years;
- Must be attending an English medium school in Kolkata.
- Score on CBQ less than 9;
- Must be of average intelligence (at 25\textsuperscript{th} percentile or above on Standard Progressive Matrices or SPM); Must have both parents alive;
Exclusion criteria:

- With any past history of psychiatric disorder;
- With chronic physical illness;
- With any organic involvement.
- With any physical disability.
- Score on CBQ is 9 or more than 9

Questionnaires were administered individually by the researcher. Clear instructions were given before administration of each scale and its response categories. English version of the questionnaire was used. All the questionnaires were administered on two sessions on two different days. At the end of each session, the researcher clarified ambiguities, if any, and provided further information about the study when the respondents wanted to. Consents were taken from the subjects as well as at least one of their parents for using data in research purpose. Few schools requested for a report based on the present study, particularly regarding the performance of the students. On the basis of the obtained scores, a report was submitted to the principals of respective schools and interventions were suggested.

Data Collection of clinical groups:

Clinical groups consists of followings 2 groups-

1. Thirty males and 30 females diagnosed as having internalizing disorders according to DSM IV.

2. Thirty males and 30 females diagnosed as having externalizing disorders according to DSM IV.

It was decided to include separation anxiety disorder, overanxious disorder, social phobia, major depressive disorder, dysthymia and obsessive compulsive disorder as internalizing
disorders and conduct disorder, oppositional defiant disorder, and attention deficit hyperactivity disorder as externalizing disorders (according to DSM IV).

Kovacs & Devlin (1998) and Kapur (1995) described depression, anxiety, phobia, obsession, somatic complaints, schizoid features as internalizing syndromes and conduct disorders, juvenile delinquency and hyperkinesis or attention deficit hyperactivity disorder as externalizing syndromes.

Subjects of clinical groups were contacted through different child and adolescent's guidance clinics of Kolkata. The nature of the study was explained to referring psychiatrists and clinical psychologists. The prospective subjects (adolescent boys/girls) along with their parents as referred by the psychiatrists and clinical psychologists were requested to participate in the study. Nature and purpose of the study were explained to them (both adolescents and their parents) and confidentiality was assured. Consents were taken from the subjects as well as their parents for using data in research purpose.

In this way total 150 subjects (80 boys and 70 girls) of 2 clinical groups (internalizing disorders and externalizing disorders) were contacted initially. Out of 150 prospective subjects 120 (60 males and 60 females; 30 males and 30 females equally for 2 groups) were selected as subjects of clinical groups on the basis of certain inclusion and exclusion criteria. The researcher administered questionnaires individually. These criteria were as follows:

**Inclusion criteria:**

1. **Internalizing disorder:**
   - Age 12 to 15 years.
   - Depressive disorders (Major Depressive Disorder, Dysthymia), Separation anxiety disorder, Overanxious disorder, Social phobia, Obsessive - compulsive disorder.
- Must be of average intelligence (at 25 percentile or above on SPM)
- Must have both parents alive.

2. **Externalizing disorder:**

- Age 12 to 15 years.
- Conduct disorder / Oppositional Defiant Disorder / Attention deficit hyperactivity disorder.
- Must be attending an English medium school in Kolkata.
- Must be of average intelligence (at 25 percentile or above on SPM)
- Must have both parents alive.

**Exclusion criteria:**

- Past history suggestive of any other psychiatric disorder;
- With any other concurrent psychiatric diagnosis;
- With any organic involvement;
- Presence of mixed disorder of internalizing and externalizing disorders like mixed disorder of conduct and emotion.
- With any chronic physical illness;
- With any physical disability;

Procedure of collection of data through the scales was same as of normal group. However, here responses of personal information schedule were further confirmed by informants.
Diagnostic criteria of different internalizing disorders and externalizing disorders are given below:

■ Criteria for Generalized Anxiety Disorder (300.02)

A. Excessive anxiety or worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance).

B. The person finds it difficult to control the worry.

C. The anxiety and worry are associated with three (or more) of the followings six symptoms (with at least some symptoms present for more days than not for the past 6 months)

   Note: Only one item is required in children.

   (1) restlessness or feeling keyed up or on edge
   (2) being easily fatigued
   (3) difficulty concentrating or mind going blank
   (4) irritability
   (5) muscle tension
   (6) sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep)

D. The focus of the anxiety or worry is not confined to features of an Axis I disorder, e.g., the anxiety or worry is not about having a Panic Attack (as in Panic disorder), being embarrassed in public (in Social Phobia), being contaminated (in Obsessive-Compulsive disorder), being away from home or close relatives (as in Separation Anxiety Disorder), gaining weight (as in Anorexia Nervosa), having multiple physical complaints (as in somatization Disorder), or having a serious illness (as in hypochondriasis), and the anxiety and worry do not occur exclusively during Post traumatic Stress Disorder.

[contd...]

111
E. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hyperthyroidism) and does not occur exclusively during a Mood disorder, a Psychotic disorder, or a Pervasive developmental disorder.

Criteria for Obsessive-Compulsive Disorder (300.3)

A. Either obsession or compulsions:

   Obsessions as defined by (1), (2), (3), and (4):

   (1) recurrent and persistent thoughts, impulses, or images that are experienced, at some time during the disturbance, as intrusive and inappropriate and that cause marked anxiety and distress.

   (2) the thoughts, impulses, or images are not simply excessive worries about real-life problems.

   (3) the person attempts to ignore or suppress such thoughts, impulses, or images, or to neutralize them with some other thought or action

   [ contd...]
(4) the person recognizes that obsessional thoughts, impulses, or images are a product of his or her own mind (not imposed from without as in thought insertion)

Compulsions as defined by (1) and (2):

(1) repetitive behaviors (e.g., hand washing, ordering, checking) or mental acts (e.g., praying, counting, repeating words silently) that the person feels driven to perform in response to an obsession, or according the rules that must be applied rigidly.

(2) the behaviors or mental acts are aimed at preventing or reducing distress or preventing some dreaded event or situation; however, these behaviors or mental acts either are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive

B. At some point during the course of the disorder, the person has recognized that the obsessions or compulsions are excessive or unreasonable.

Note: This does not apply to children.

C. The obsessions or compulsions cause marked distress, are time consuming (take more than 1 hour a day), or significantly interfere with the person's normal routine, occupational (or academic) functioning, or usual social activities or relationships.

D. If another Axis I Disorders present, the content of the obsessions or compulsions is not restricted to it (e.g., preoccupation of food in the presence of an Eating Disorder; hair pulling in the presence of Body Dysmorphic Disorder; preoccupation of drugs in the presence of Substance Use Disorder; preoccupation of having serious illness in the presence of Hyprochondriasis;
E. Preoccupation with sexual urges or fantasies in the presence of a Paraphilia; or guilty ruminations in the presence of Major Depressive Disorder).

F. The disturbance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition.

**Specify if:**

**With Poor Insight:** if, for most of the time during the current episode, the person does not recognize that the obsessions and compulsions are excessive or unreasonable

---

**Criteria for Major Depressive Disorder (296.xx )**

A. Five (or more) of the following symptoms have been present during the same 2 week period and represent a change from previous functioning: at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure:

**Note:** Do not include symptoms that are due to general medical condition, or mood-incongruent delusions or hallucinations.

1. Depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). In children and adolescents, can be irritable mood.

2. Markedly diminished interest or pleasure in all, or almost all activities most of the day, nearly every day (as indicated by either subjective account or observation made by others).

[ contd....]
(3) Significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decreased or increased in appetite nearly every day.

Note: In children consider failure to make weight gains.

(4) Insomnia or hypersomnia nearly every day.

(5) Psychomotor agitation or retardation nearly every day (observed by others, not merely subjective feelings of restlessness or being slowed down)

(6) Fatigue or loss of energy nearly every day.

(7) Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self reproach or guilt about being sick).

(8) Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)

(9) Recurrent thought of death (not just fear of dying), recurrent suicidal ideation with out a specific plan, or a suicidal attempt or a specific plan for coming suicide.

B. The symptoms do not meet criteria for a mixed episode.

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general physical condition (e.g., hypothyroidism).

[ contd …]
E. The symptoms are not better accounted for by bereavement, i.e., after loss of a loved one, the symptoms persists for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

- **Diagnostic criteria for Dysthyemic Disorder (300.4)**

A. Depressed mood for most of the day, for more days than not, as indicated either by subjective account or observation by others, for at least 2 years.

**Note:** In children and adolescents, mood can be irritable and duration must be at least 1 year.

B. Presence, while depressed, of two (or more) of the following;

1. poor appetite or overeating.
2. insomnia or hypersomnia
3. low energy or fatigue
4. low self-esteem
5. poor concentration or difficulty making decisions
6. feelings of hopelessness

C. During the 2 year period (1 year for children or adolescents) of the disturbance, the person has never been without the symptoms in Criteria A and B for more than 2 months at a time.

[ Contd...]
D. No major Depressive Episode has been present during the fort 2 years of the disturbance (1 year for children or adolescents); i.e., the disturbance is not better accounted for by chronic Major Depressive Disorder, or Major Depressive Disorder, In Partial Remission.

Note: There may have a Major Depressive Episode provided there was a full remission (no significant signs or symptoms for 2 months) before development of Dysthymic Disorder. In addition, after the initial 2 years (1 year for children or adolescents) of Dysthymic Disorder there may be superimposed episodes of Major Depressive Disorder, in which case both diagnosis may be given when the criteria are met for a Major Depressive Episode.

E. There has never been a Manic Episode, a Mixed Episode or a Hypomanic Episode, and criteria have never been met for Cyclothymic Disorder.

F. The disturbances do not occur exclusively during the course of a chronic Psychotic Disorder, such as Schizophrenia or Delusional Disorder.

G. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

H. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

*Specify if:* Early Onset: if onset is before age 21 years
Diagnostic criteria for Separation Anxiety Disorder (309.21)

A. Developmentally inappropriate and excessive anxiety concerning separation from home or from those to whom the individual is attached, as evidenced by three (or more) of the following:

(1) recurrent excessive distress when separation from home or major attachment figures occurs or is anticipated.
(2) Persistent and excessive worry about losing, or about possible harm befalling, major attachment figures
(3) Persistent and excessive worry that an untoward event will lead to separation from a major attachment figures (e.g., getting lost or being kidnapped)
(4) Persistent reluctance or refusal to go school or elsewhere because of fear of separation.
(5) Recurrent excessive distress when separation from home or major attachment figures occurs or is anticipated.
(6) Persistent and excessive worry about losing, or about possible harm befalling, major attachment figures
(7) Persistent and excessive worry that an untoward event will lead to separation from a major attachment figures (e.g., getting lost or being kidnapped)
(8) Persistent reluctance or refusal to go school or elsewhere because of fear of separation.
(9) Persistently and excessively fearful or reluctant to be alone or without attachment figures at home or without significant adults in other settings.
(10) Persistent reluctant or refusal to go to sleep without being near a major attachment figures or to sleep away from home
(11) Repeated nightmares involving the theme of separation.
(12) Repeated complaints of physical symptoms (such as headaches, stomachaches, nausea, or vomiting) when separation from major attachment figures occurs or is anticipated
B. The duration of the disturbance is at least 4 weeks.

C. The onset is before age 18 years.

D. The disturbance causes clinically significant distress or impairments in social, academic (occupational), or other important areas of functioning.

E. The disturbance does not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and, in adolescents and adults, is not better accounted for by Panic Disorder with Agoraphobia.

Specify if:
Early Onset: if onset occurs before age 6 years

Diagnostic criteria for Social Phobia (300.23)

A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing.

Note: In children there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just interaction with adults.

[contd...]
B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed panic attack.  
**Note:** In children, the anxiety may be expressed by crying, tantrums, freezing, or shinking from social situations with unfamiliar people.

C. The person recognizes that the fear is excessive or unreasonable.  
**Note:** In children, this feature may be absent.

D. The feared social or performance situations are avoided or else are endured with intense anxiety or distress.

E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person’s normal routine, occupational (academic) functioning, or social activities or, relationships, or there is marked distress about having the phobia.

F. In individual under age 18 years, the durations at least 6 months.

G. The fear of avoidance is not due to the direct physiological effect of a substance (e.g., a drug abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., Panic Disorder With or Without Agoraphobia, Seperation Anxiety Disorder, Body Dysmorphic Disorders, a Pervasive Developmental Disorder or Schizoid Personality Disorder).

H. If a general medical condition or another mental disorder is present, the fear in Criterion A is unrelated to it, e.g., the fear is not of Stuttering, trembling in Parkinson’s disease, or exhibiting abnormal eating behaviour in Anorexia Nervosa or Bulimia Nervosa.

Specify if: **Generalized**: if the fears include most social situations (also considered the additional diagnosis of Avoidant Personality Disorder).
Diagnostic criteria for Attention-Deficit/Hyperactivity Disorder (314.xx)

A. Either (1) or (2):
(1) Six (or more) of the followings symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention
(a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities.
(b) Often has difficulty sustaining attention in tasks or play activities.
(c) Often does not seem to listen when spoken directly
(d) Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)
(e) Often has difficulty in organizing tasks and activities.
(f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as school work or homework).
(g) Often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
(h) Is often easily distracted by extraneous stimuli.
(i) Is often forgetful in daily activities

(2) six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity
(a) often fidgets with hands or feet or squirms in seat
(b) often leaves seat in class room or in other situations in which remaining seated is expected

[ contd...]
(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d) often has difficulty playing or engaging in leisure activities quietly
(e) is often “on the go” or often acts as if “driven by motor”
(f) often talks excessively

**Impulsivity**

(g) often blurts out answers before questions have been completed
(h) often has difficulty awaiting turn
(i) often interrupts or intrudes on others (e.g., butts into conversations or games)

B. Some hyperactivity-impulsive or inattentive symptoms that caused impairment were present before age 7 years.
C. Some impairments from the symptoms is present in two or more settings (e.g., at school [or work] and at home).
D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.
E. The symptoms, do not occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood Disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).
Diagnostic criteria for Conduct Disorder (312.8)

A. A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the followings criteria in the past 12 months, with at least one criterion present in the past 6 months:

Aggression to people and animals
(1) often bullies, threatens, or intimidates others
(2) often initiates physical fights
(3) has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun)
(4) has been physically cruel to people
(5) has been physically cruel to animals
(6) has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)
(7) has forced someone into sexual activity

Destruction of property
(8) has deliberately engaged in fire setting with the intention of causing serious damage.
(9) has deliberately destroyed others’ property (other than by fire setting)

Deceitfulness or theft
(10) has broken into someone else’s house, building, or car
(11) often lies to obtain goods or favors or to avoid obligations (i.e., “cons” others)
(12) has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery)
Serious violations of rules
(13) often stays out at night despite parental prohibitions, beginning before age 13 years
(14) has run away from overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)
(15) is often truant from school, beginning before age 13 years.

B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C. If the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.

Specify type based on age at onset:

Childhood-onset Type: onset of at least one criterion characteristics of Conduct Disorder prior to age 10 years
Adolescent -onset Type: absence of any criteria characteristics of Conduct Disorder prior to age 10 years

Specify severity:

Mild: few if any conduct problems in excess of those required to make the diagnosis and conduct problems cause only minor harm to others
Moderate: number of conduct problems and effect on others intermediate between “mild” and “Severe”
Severe: many conduct problems in excess of those required to make the diagnosis or conduct problems cause considerable harm to others
Diagnostic criteria for Oppositional Defiant Disorder (313.81)

A. A pattern of negativistic, hostile, and defiant behavior lasting at least 6 months, during which four (or more) of the following are present:
   a. often loses temper
   b. often argues with adults
   c. often actively defies or refuses to comply with adults’ requests or rules
   d. often deliberately annoys people
   e. often blames others for his or her mistakes or misbehavior
   f. is often touchy or easily annoyed by others
   g. is often angry and resentful
   h. is often spiteful or vindictive

Note: Consider a criterion met only if the behavior occurs more frequently than is typically observed in individuals of comparable age and developmental level.

B. The disturbance in behavior causes clinically significant impairment in social, academic, or occupational functioning.

C. The behaviors do not occur exclusively during the course of a Psychotic or Mood Disorder.

D. Criteria are not met for Conduct Disorder and, if the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.
The sample characteristics collected on the basis of personal information schedule of 2 clinical groups (Externalizing disorders and Internalizing disorders) and Normals are given in Table 3.8

**Table 3.8** Sample characteristics of Male (M) and Female (F) subjects of the three groups

<table>
<thead>
<tr>
<th></th>
<th>Normals</th>
<th></th>
<th>Externalizing disorders</th>
<th></th>
<th>Internalizing disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (N=50)</td>
<td>F (N=50)</td>
<td>M (N=30)</td>
<td>F (N=30)</td>
<td>M (N=30)</td>
</tr>
<tr>
<td>Age Mean</td>
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<td>13.60</td>
<td>13.47</td>
<td>13.50</td>
<td>14.03</td>
</tr>
<tr>
<td>Age SD</td>
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<td>1.30</td>
<td>1.40</td>
<td>1.47</td>
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<tr>
<td>Grade</td>
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<td>10</td>
<td>10</td>
<td>6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>VIII</td>
<td>10</td>
<td>10</td>
<td>9</td>
<td>8</td>
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<td>10</td>
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<td>Type of Family</td>
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<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>31</td>
<td>28</td>
<td>20</td>
<td>19</td>
<td>18</td>
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<tr>
<td>Extended Nuclear</td>
<td>19</td>
<td>22</td>
<td>10</td>
<td>11</td>
<td>12</td>
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<tr>
<td>Number of family members</td>
<td>Mean</td>
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<td>4.10</td>
<td>3.68</td>
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<tr>
<td></td>
<td>SD</td>
<td>1.26</td>
<td>1.54</td>
<td>1.49</td>
<td>0.87</td>
</tr>
<tr>
<td>Monthly family income (in thousands)</td>
<td>Mean</td>
<td>14.91</td>
<td>15.17</td>
<td>14.65</td>
<td>14.82</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>3.79</td>
<td>4.05</td>
<td>3.09</td>
<td>2.61</td>
</tr>
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The sample characteristics on the basis of clinical diagnosis of Internalizing disorders are given in Table 3.9

Table 3.9: Internalizing Disorders (N= 60)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressive disorder (Major depression, Dysthymia)</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Anxiety disorder (Separation anxiety, Overanxious disorder)</td>
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<td>8</td>
</tr>
<tr>
<td>Phobic disorder (Social phobia)</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Obsessive compulsive disorder (OCD)</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

The sample characteristics on the basis of clinical diagnosis of Externalizing disorders are given in Table 3.10

Table 3.10: Externalizing Disorders (N= 60)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention deficit hyperactivity disorder (ADHD)</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Conduct disorder</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Oppositional Defiant Disorder (ODD)</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>
3.3 **Analysis of data:**

1. Descriptive statistics were done to show the nature of the data.

2.a. For fulfilling objectives no. 1 to 12, two-way analysis of variances (ANOVA) (Guilford and Fruchter, 1981) were done to determine whether different dimensions of personality, different dimensions of home environment and different dimensions of school environment differ among normals and 2 clinical groups, between sex and by interaction of sex and groups.

2.b. Where the main effects of groups have been significant, subsequent t tests have been conducted between each pair of groups. Where interaction is significant with at least one main effect being significant, subsequent t tests have been calculated to determine sex differences within each group.

3. For all other variables except where effects of sex and / or interaction have been found significant, males and females have been clubbed together for subsequent analysis.

4. For fulfilling specific objectives no. 13 to 36, Stepwise Multiple Regression Analysis (SMRA) (Guilford & Fruchter, 1981) was done (by using SPSS Version 10.0). For SMRA, male and female were clubbed together in each of the clinical groups (internalizing disorders and externalizing disorders) and combining clinical groups altogether and normals, as F values show males and females do not differ with respect to any of the criteria variables (emotional symptoms, conduct problems, hyperactivity, peer problems, total difficulty score and prosocial behaviour).

SMRA is a technique for choosing the variables to include in a multiple regression model. In principle, the operation begins with selection of the predictor variables (or independent variables, as the case may be) that by itself has highest correlation with criterian variable (or dependent variable, as the case may be). The procedure then selects computational steps the predictor variables that would make the largest gain in prediction.
These operations are best left to the software statistical package (in this case SPSS 10). At this point the software would find the multiple $R$ for the combination of the two best predictors. And it would make an $F$ test to determine whether the new $R$ is significantly greater than the correlation without the last addition. The addition of variables would cease when the probability associated with the obtained $F$ rose above an adopted alpha level. In this way SMRA includes only those predictor variables which significantly contribute to criterion variable. $R^2$ value indicates that the percentage of variance in dependent or criterion variable is explained by the independent or predictor variable(s).

SMRA choose the significant predictor variables contribute to a criterion variable. The direction in which the predictors variables are contributing (either positively or negatively) depends on the direction of beta coefficients (George & Mallery, 2006).
### Fig. 3.1

**Schematic Diagram of the Research design of the study:**

**Predictor variables**

**PERSONALITY**
- 1. Psychoticism (P)
- 2. Neuroticism (N)
- 3. Extraversion (E)
- 4. Lie (L)

Assessed by JEPQ

**HOME ENVIRONMENT**
- 1. Control
- 2. Protectiveness
- 3. Punishment
- 4. Conformity
- 5. Social isolation
- 6. Reward
- 7. Deprivation of privileges
- 8. Nurturance
- 9. Rejection
- 10. Permissiveness

Assessed by HEI

**SCHOOL ENVIRONMENT**
- 1. Creative stimulation
- 2. Cognitive encouragement
- 3. Permissiveness
- 4. Acceptance
- 5. Rejection
- 6. Control

Assessed by SEI

**Criteria variables**

**PSYCHOPATHOLOGY**
- 1. Emotional symptoms
- 2. Conduct problem
- 3. Hyperactivity-inattention
- 4. Peer group problems
- 5. Total difficulty score

**Prosocial Behaviour**
Assessed by SDQ

**GROUPS**
- 1. Internalizing Disorders
- 2. Externalizing Disorders
- 3. Clinical groups altogether